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Mindful self-compassion program adapted for professional caregivers of juvenile detention facilities: A pilot mixed-method study

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ABSTRACT

Working with youth placed at juvenile detention facilities is considered a demanding and challenging job. Research shows that professional caregivers responsible for these youth are more prone to burnout syndrome and other related psychopathological symptoms. Still, while there is encouraging evidence about using compassion-based interventions or mindfulness strategies to tackle those difficulties with professional caregivers from different settings, little is known about those interventions' effects among professional caregivers of juvenile detention facilities. To overcome this gap, this pilot mixed-method study aimed to assess the impact of an adapted version of the Mindful Self-Compassion program among professionals working in Portuguese juvenile detention facilities (MSC_JFD). A Treatment Group (TG; n=14) and a Waitlist Control Group (WCG; n=18) were assessed at baseline and posttreatment with self-report measures on self-compassion, mindfulness, fears of compassion, and burnout symptoms. The TG also participated in a focus group after completing the program. Individual change scores were plotted to visualize variability in responses between participants. Quantitative data showed that, compared to WCG participants, TG participants decreased their fears of giving compassion – a pattern also reflected in the qualitative findings. No other significant between-group differences were found. However, qualitative findings suggested perceived improvements in self-compassion, mindfulness, and burnout symptoms among TG participants. These findings indicate that the adapted version of the MSC program may be a promising and useful approach to address mental health difficulties among professional caregivers of juvenile detention facilities.

Youth delinquency is a relevant clinical and social problem that leads to a non-negligible percentage of youth facing detention during adolescence (Fairchild et al., 2019; Mathys, 2017). Most intervention efforts delivered at Juvenile Detention Facilities (JDF) are focused on these youth, namely on treating their antisocial behavior and associated mental health problems, aiming to prevent criminal recidivism and to promote youth's psychological rehabilitation (Koehler et al., 2013; Mathys, 2017; Ribeiro da Silva et al., 2020; Rijo et al., 2016, 2020). However, the work at JDF involves several professionals, who supervise the youth's routines daily, take care of them, model their behaviors, and prepare them for future social reintegration (Ekman, 2015; Jolivette et al., 2019; Mathys, 2017). This demanding work requires a team of professional caregivers with a robust and stable mental health, which may be a crucial asset in enhancing the rehabilitation odds of youth as well as in promoting their general wellbeing (Baetz et al., 2019; Jolivette et al., 2019; Rhineberger-Dunn & Mack, 2020).

The work at JDF is characterized as challenging, demanding, and of great responsibility (Ekman, 2015; Jolivette et al., 2019). In specific, perceived threats of aggression, time spent in direct contact with youth with aggressive behaviors and mental health issues, work overload and working overtime, working in shifts, and the lack of human resources, altogether contribute for a constant hypervigilant posture, impacting negatively on the professional's physical, emotional and psychological well-being (Forman-Dolan et al., 2022; Jolivette et al., 2019; Miller

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et al., 2022, 2024; Rhineberger-Dunn & Mack, 2020). The constraints placed on professionals that work as caregivers were found to predict higher levels of stress and burnout (Forman-Dolan et al., 2022; Rhineberger-Dunn & Mack, 2020).

Defined as "a syndrome of emotional exhaustion and cynicism that occurs frequently among individuals who do "people-work" of some kind" (Maslach, Schaufeli, & Leiter, 2001, pp.1), burnout can be manifested by symptoms of depression and anxiety, as well as physical, emotional or psychological exhaustion (Lambert et al., 2015; Maslach et al., 2001). Burnout related difficulties have been widely studied in several groups of caregivers, including those in forensic settings (Alves et al., 2023; Costa et al., 2024; Dall'Ora et al., 2020; Gérain & Zech, 2021; Ghahramani et al., 2021; Lambert et al., 2015; Rothman & Rossow, 2020; Valido et al., 2022). However, less is known about burnout difficulties among caregiver professionals at JDF (Rhineberger-Dunn & Mack, 2020). Stress and burnout seem to negatively impact on: professionals' life satisfaction and health outcomes; the quality of relationships between youth and JDF professionals; the performance of professional duties and the satisfaction of those who are cared/supervised by them; increased punishment attitudes and behaviors; and decreased levels of compassion for others (Dev et al., 2018; Forman-Dolan et al., 2022; Lambert et al., 2015; Mills et al., 2022, 2024; Rhineberger-Dunn & Mack, 2020; Sinclair, Raffin-Bouchal, et al., 2017).

Due to its affiliative nature, compassion – and self-compassion – has been identified as having an important role in the promotion of mental health and well-being in general, and in work contexts in particular (Andersson et al., 2022; Gilbert, 2020). Compassion has been defined as the ability to be open to human suffering, allied with a genuine desire to prevent or alleviate it, requiring mindfulness skills, i.e., awareness that emerges from paying attention to the present moment, intentionally and without judging whatever that moment brings (Germer, 2013; Gilbert, 2020; Kabat-Zin, 2003). Compassion comprises three interactive flows: feeling and acting compassionately towards others; the openness and responsiveness to the compassion flowing from others towards oneself, and our capacity to be self-compassionate and give/receive compassion towards/from oneself (Gilbert, 2020). According to Neff (2003), self-compassion involves sensitivity and openness to one's own suffering and the ability to act to alleviate it, in a gentle or fierce way. Previous research has suggested that more self-compassionate people tend to present lower levels of anxiety, stress, depression, and burnout, as well as higher levels of psychological well-being, life and job satisfaction, and more positive relationships with others, both in personal and professional contexts (Germer & Neff, 2019; Neff & Germer, 2013; Neff et al., 2020; Sinclair et al., 2017). In this sense, interventions based on (self) compassion and mindfulness, as well as self-care practices, have been widely recommended for caregivers or professionals working in hard or challenging work contexts (Andersson et al., 2022; Dev et al., 2018; Jolivette et al., 2019).

Recent research has found positive outcomes on the efficacy of Mindfulness-Based Cognitive Therapy (MBCT; e.g., Mann et al., 2016); Mindfulness-Based Stress Reduction (MBSR; e.g., Hou et al., 2013; Kriakous, 2021); Acceptance and Commitment Therapy (ACT; e.g., Flaxman & Bond, 2010; Zarling et al., 2025); Compassion Focused Therapy (CFT; e.g., Santos et al., 2023; Sinclair, Kondejewski, et al., 2017) and Mindful Self-Compassion (MSC; e.g., Jiménez-Goméz, 2022; Neff & Germer, 2013) among different groups of caregivers. Mindful-based interventions have been tested within healthcare professionals and with parents and family caregivers, contributing to a significant reduction of anxiety, stress and depression levels, as well as improvements on mindfulness and self-compassion rates (Hou et al., 2013; Kriakous, 2021; Mann et al., 2016; Sansó et al., 2017; Türkoğlu & Kavuran, 2024). However, those interventions did not appear as effective in reducing burnout or improving resilience among healthcare professionals (Kriakous et al., 2021). Compassion-based interventions across several family caregivers and professional caregivers (e.g., parents, teachers, health care professionals) have been shown to be effective in reducing anxiety, stress and depression levels, and also burnout and self-criticism, as well as in increasing compassion towards others and compassion satisfaction (Bratt et al., 2020; Johansson et al., 2022; Matos et al., 2022; Maratos et al., 2019; Navab et al., 2019; Santos et al., 2023; Sinclair et al., 2017a, 2017b). In particular, the Mindful Self-Compassion Program (MSC; Neff & Germer, 2013) has gained empirical evidence concerning its efficacy with various groups of caregivers, including nurses, clinical and health psychologists and healthcare professionals (Delaney, 2018; Jiménez-Goméz, 2022; Neff, 2023; Neff et al., 2020). In specific, it seems to be efficient in reducing physical/psychological problems as well as feelings of being burdened by ones' own and others' suffering, improving the quality/satisfaction with life, and increasing empathy and compassion towards others, which are essential skills that caregivers may use to respond to the needs of those they care for (Dev et al., 2018; Neff et al., 2020; Neff & Germer, 2013; Sinclair, Kondejewski, et al., 2017).

In addition, recent studies also highlighted that the efficacy of compassion-based interventions can be boosted when fears, blocks and resistances (FBRs) of compassion are targeted (Kirby et al., 2019; Matos et al., 2023; Steindl et al., 2023). Although normative to a certain degree, high levels of FBRs of compassion can inhibit, block and influence the three flows of compassion mentioned above, also increasing the vulnerability to mental health difficulties, to self-criticism and to disconnection from others, especially in times of distress (Gilbert et al., 2011; Gilbert & Mascaro, 2017; Kirby et al., 2019). Thus, compassion-based interventions should target and reduce fears of compassion, to prevent them from hampering the development of compassion, to increase the sense of social connectedness, and to enhance the development and maintenance of a compassionate motivation, which is crucial in caring related professions (Gilbert, 2020; Petrocchi et al., 2024; Sahndra et al., 2023; Sinclair et al., 2017a, 2017b). Targeting fears of compassion seems especially relevant in interventions designed for JDF caregivers, considering their common beliefs, perceptions, and attitudes towards behaving in a 'macho' way and minimizing stress and forms of suffering (Cheek & Miller, 1983; Dowden & Tellier, 2004; Wells, Minor, Angel, Matz, & Amato, 2008). These beliefs and attitudes may be associated with viewing compassion as unnecessary, as a weakness, and/or as something harmful, or with the perception that compassionate efforts will be seen as incompetent, unhelpful, or may be rejected (Gilbert et al., 2011, 2025; Gilbert & Mascaro, 2017). Consequently, fears of compassion are likely to affect help-seeking behaviors negatively, both from others and from oneself (Cheek & Miller, 1983; Gilbert et al., 2011, 2025; Sak et al., 2021), and may inhibit access to a caring mentality, which is essential in caring professions (Sak et al., 2021). Moreover, the pervasive sense of adversity in JDF contexts, along with professionals' hypervigilant behavior, may also compromise or block the activation of a compassionate response across its different flows (Gilbert et al., 2025; Gilbert & Mascaro, 2017; Steindl et al., 2022).

Despite evidence on the usefulness of (self)compassion- and mindfulness-based interventions at several levels, research on the efficacy of those interventions for JDF is scarce and limited. The few studies with JDF professionals have mostly focused on training them to deal with behavioral problems (Lary, 2007), on improving their knowledge on delinquent developmental trajectories (Dölitzscha et al., 2016), or on improving the physical/relational settings of caregiving contexts (Walden and Allen, 2019). Some studies with professionals working in prison settings addressed burnout related difficulties using psychoeducational programs, workshops, stress management, crisis intervention and mindfulness-based interventions (see Evers et al., 2022; Forman-Dolan et al., 2020 for a review). However, assessing and working with adults in prison settings may not be transferable for professionals working at JDF because of the substantial differences in its organizational structure and culture, as well as on their job characteristics (Rhineberger-Dunn & Mack, 2020). Moreover, caring for youth at JDF may pose additional challenges for professionals, related to the

developmental and mental health needs of these youth (Cohen-Filipic & Bentley, 2015; Fairchild et al., 2019).

In a recent systematic review by Forman-Dolan and colleagues (2022), only one study addressed the efficacy of interventions targeting work and/or personal issues of JDF professionals (Ekman, 2015). This study assessed the levels of job stress/burnout related to working with incarcerated youth and developed and tested the efficacy of a pilot training program on emotion regulation, mindfulness, psychoeducation and communication skills, applied to 36 participants, without a control group. Participants reported that empathy training, mindfulness skills (especially those including breathing exercises) and motivation exercises were particularly helpful in dealing with their work daily challenges (Ekman, 2015).

Considering both the benefits that promoting mindfulness and self-compassion seem to have in interpersonal, intrapersonal, and work-related issues, as well as the lack of interventions focused on the particular challenges faced by JDF professionals, it is crucial to develop tailored interventions for these professionals (Forman-Dolan et al., 2020; Germer & Neff, 2019; Neff, 2023; Neff et al., 2020; Neff & Germer, 2013). In the current research, we investigated the impact of the adapted version of the MSC (i.e., the MSC for Juveline Detention Facilities MSC_JDF; Neff & Germer, 2013) with professionals working in Portuguese JDF. In specific, this study aimed to test the impact of the MSC_JDF on personal indicators (i.e., self-compassion, mindfulness, and FBRs which were considered primary outcomes), as well as in professional related symptoms (i.e., burnout, considered a secondary outcome). This study was a pilot-controlled trial and used a mixed method embedded design (Creswell & Plano Clark, 2011), specifically a convergent parallel design, in which *the qualitative and quantitative methods are of equal status and are implemented independently, with integration occurring at the interpretation phase of the research* (Hall, 2020, p. 119). Quantitative and qualitative measures were used to explore group perspectives on the intervention program delivery and utility. The current work aims to address the following research question: Is the MSC_JDF intervention helpful in changing JDF self-compassion, mindfulness, FBRs to compassion (i.e., primary outcomes) and burnout (i.e., secondary outcome)? A mixed method design was used to address this research question, by combining pre-to post-intervention quantitative data and post-intervention qualitative data. In both cases, information was sought out potential changes in how participants related with their personal and work-related challenges and with themselves, as well as in how participants related to their work colleagues and work environment (i.e., burnout). Quantitative data were also used to explore a subsequent research question regarding whether changes in the intervention group differed from those observed in the no-intervention control group.

In line with previous research, it was hypothesized that participation in the MSC_JDF would lead to increases in self-compassion and mindfulness (Neff, 2023; Neff et al., 2020), while reducing fears of compassion (H1). It is also expected to have a reduction of burnout symptoms (H2) (Kirby et al., 2019; Neff & Germer, 2013). Moreover, it was expected that both quantitative and qualitative data would show converging trends, mutually reinforcing the findings and providing a more comprehensive understanding of the program's effects (H3). Altogether, it is anticipated that the MSC_JDF would have a positive impact on professionals' work-related difficulties, as well as on their self-to-self connection (Neff, 2023; Neff et al., 2020).

1. Method

1.1. Participants and sampling procedures

Participants were professionals working in two Portuguese JDF, both technical (i.e., JDF directors, coordinators, case managers and psychologists) and education professionals (i.e., who ensure youth daily routines and care provision). Eligibility criteria included: working at the JDF for at least six months and directly interacting with youths on a regular basis (minimum of 30/hours per week). Face-to-face meetings took place before baseline assessment, in which researchers explained the nature and aims of the study, clarified doubts, and invited professionals to voluntarily participate, while ensuring confidentiality and anonymity of any information collected or shared by participants during intervention sessions. Previous to baseline assessment, it was explained that their decision, either to participate or not, would not impact participants' leisure time or work in any way [i.e., for participants in the treatment group (TG), the hours spent in the program were compensated with time off], that no payment or extra credit would be offered, and that they could withdraw from the study at any time, without further explanation. For TG participants, a brief overview of the intervention program and information about the qualitative assessment was also provided. Participants who choose to participate signed a written informed consent.

1.2. Intervention

The MSC_JDF (cf. Table 1 for an overview of program contents) is a 12-session group training intervention (groups of 4–8 participants), which was specifically adapted from the MSC (Neff & Germer, 2013), considering the needs and difficulties of JDF professionals. This program intends to cultivate a (self)-compassionate motivation by increasing awareness of personal (dysfunctional) patterns as well as finding kind and courageous ways to deal with them. Each session lasts about 2 h (including a 10-min coffee break) and has the following structure: Grounding exercise; Sharing individual insights about the weekly practice; Reviewing the previous session and link for the session theme; Coffee break; Soft landing exercise; Formal/Informal practice(s); Session summary and challenges for the week; Session assessment and take-off. On the first session, each participant receives a guidebook with the contents shared in each session and some blank space for individual reflections/notes. On the day after each session, an email is sent to participants summing up the contents of the former session and providing them with audio recordings of the (in)formal practices delivered. The MSC (Neff & Germer, 2013) adaptation was carried out by the research team, in cooperation with two experts in developing and testing the efficacy of compassion-based interventions in forensic settings. The TG received the MSC_JDF for about three months. The Waitlist Control Group (WCG) did not receive any intervention during that time.

1.3. Outcome measures

1.3.1. Quantitative measures

1.3.1.1. Primary outcomes

1.3.1.1.1. ***The self-compassion scale*** *(SCS; original version by Neff, 2003; Portuguese version: Castilho & Pinto-Gouveia, 2012).* The SCS is a 26-item self-report measure that assesses self-compassion, asking participants about how they treat themselves in difficult times. Items (e.g., I'm kind to myself when I'm experiencing suffering) are rated on a five-point Likert type scale (1 = "almost never" to 5 = "almost always"). The SCS addresses six constructs, three positive (i.e., Self-kindness, Common Humanity, and Mindfulness) and three negative (i.e., Self-judgment, Isolation, and Over-Identification) ones, which can be grouped into a total score. The total score presented excellent internal consistency for the total score in its original version (α = .92; Neff, 2003), and good internal consistency in its Portuguese version (α = .89; Castilho & Pinto-Gouveia, 2012). In the present study, the SCS total score showed excellent internal consistency (α = .90).

1.3.1.1.2. ***The Cognitive and Affective mindfulness scale – revised form*** *(CAMS-r; original version by Feldman et al., 2007; Portuguese version by Teixeira, Ferreira, & Pereira, 2017).* The CAMS-R is a 12-item self-report measure that assesses mindfulness (e.g., It's easy for me to keep track of my thoughts and feelings). Items are answered on a

Table 1
Mindful Self-Compassion for Juvenile Detention Facilities (adapted form of Mindful Self-Compassion Program from Neff & Germer, 2013) Program structure.

Sessions	Specific goals	Practices
1. Pre-orientation session	• Introducing the participants and the group leader; • Understanding participants' hopes, fears and motivations about integrating the group; • Discussing the aims and rules of the intervention program.	
2. Discovering Self-Compassion	• Exploring preconceived ideas about the development of self-compassion; • Explaining the concept of self-compassion and the associated misgivings, specifically on their development/use in JDF settings; • Sharing scientific data on the benefits of self-compassion in the general population and in caregivers in particular; • Introducing, experiencing, and exploring meditation practices using work-related situations.	• Soothing Touch; • Self-Compassionate Break.
3. Mindfulness: Being Present	• Exploring the concept of mindfulness, its use in everyday life and in work context in particular; • Defining the concepts and forms of resistance and backdraft; • Exploring strategies on how to deal with the backdraft and mindfulness discomfort; • Exploring situations in which we inflict suffering upon ourselves.	• Affectionate Breathing; • Soles of the Feet.
4. Working with fears, blocks, and resistances to (Self)Compassion: The courage to change	• Defining and exploring the concepts of fears, blocks, and resistances to (self)compassion; • Introducing the concept of loving kindness and its distinction from compassion; • Practicing giving and receiving phrases of loving kindness and compassion, in work-related situations and with/for work colleagues.	• Exploring discomfort in the body through mindfulness and self-compassion.
5. Bringing (Self) Compassion to deal with daily (work) challenges	• Practicing giving and receiving phrases of loving kindness and compassion in work-related situations; • Discovering phrases of loving kindness addressed to the self.	• The rain of compassion; • Loving-Kindness for a loved one.
6. Discovering the Compassionate Voice: Compassion and Loving-Kindness directed towards the Self	• Deepening the practice of self-directed loving-kindness; • Identifying and exploring the stages of progress associated with the development of self-compassion in everyday life and in work context in particular; • Defining and exploring the concept of self-criticism, its forms, and functions; • Identifying and cultivating the compassionate inner voice by writing a compassionate letter.	• Loving-kindness directed towards the self.
7. Immersing into practice: Developing a compassionate gaze, anchored, and directed towards the body	• Anchoring the attention on the body and on oneself; • Discovering the power of being in silence; • Developing a deeper knowledge of the implemented practices; • Practicing in a relaxed atmosphere, with fewer moments for learning contents and group discussions.	• Compassionate Body Scan; • Affectionate Breathing; • Sense and savor walk at the work place; • Compassionate walking with work colleagues.
8. Dealing compassionately with difficult emotions	• Exploring the concept of difficult emotions; • Exploring the unmet needs underlying the emotion of anger, in particular in work-related tasks and relationships (i.e., with colleagues, youth, superiors); • Discovering the stages of acceptance of difficult emotions and learning how to cope with them through mindfulness and self-compassion.	• Giving and Receiving Compassion; • Working with difficult emotions: Soften-Soothe-Allow.
9. Coping compassionately with shame	• Exploring the concept and function of shame throughout the activation at the work context; • Identifying cognitions, emotions, behaviors, and core beliefs related to shame; • Learning how to cope with shame through mindfulness and self-compassion.	• Affectionate Breathing.
10. Exploring challenging relationships through (Self)Compassion	• Exploring challenges and specificities of interpersonal relationships at the work context; • Applying mindfulness and self-compassion to work; • Exploring the concepts and symptoms of burnout and compassion fatigue in	• Safe Place; • Compassionate Friend; • Self-Compassion break in interpersonal relationships; • Compassion with equanimity.

(continued on next page)

Table 1 (*continued*)

Sessions	Specific goals	Practices
	oneself and in coworkers; • Practicing forgiveness and reconciliation in work related situations; • Practicing Compassion with equanimity.	
11. Living deeply by bringing Mindfulness and Self-Compassion to my life	• Identifying core values, particularly the ones related to work field and its obstacles of acting in accordance to them; • Uncover the meaning behind work-related distress; • Developing compassion listening skills using a work-related situation and in the relationship with coworkers.	• Compassion for Self and Others.
12. Closing: Life as a safe haven	• Cultivating happiness through daily practices; • Practicing savoring, gratitude, inter and intra appreciation as ways to cope with the natural negativity of the human mind; • Reflecting on the core aspects of the program; • Discussing different ways to continue the practice and encouraging its maintenance (on daily life and particularly in the work context).	• The Mountain meditation.

four-point scale (1 = "not at all" to 4 = "almost always"). On the CAMS-R original version, acceptable internal consistency was reported ($\alpha = .77$; Feldman et al., 2007) and similar results were obtained by the Portuguese validation version ($\alpha = .76$; Teixeira et al., 2017). In the present study, the CAMS-R showed good internal consistency ($\alpha = .81$).

*1.3.1.1.3. The **fears of compassion scale** (FCS; original version by Gilbert et al., 2011; Portuguese version by Simões, 2012).* The FCS is a 38-item self-report measure that comprises three subscales measuring: Fears of expressing compassion towards others (FEC; 10 items, 9 in the Portuguese version; e.g., People will take advantage of me if they see me as too compassionate); Fears of receiving compassion from others (FRC; 13 items; e.g., If people are friendly and kind I worry they will find out something bad about me that will change their mind); and Fears of expressing self-compassion (FSC; 15 items; e.g., When I try and feel kind and warm to myself I just feel kind of empty). Items are rated on a five-point scale (0 = "do not agree at all" to 4 = "completely agree"). In its original version (i.e., Gilbert et al., 2011) acceptable to excellent internal consistency were obtained ($\alpha = .78$ for FEC, $\alpha = .87$ for FRC and $\alpha = .92$ for FSC; Gilbert et al., 2011) alike for the Portuguese version of FCS ($\alpha = .88$ for FEC, $\alpha = .91$ for FRC and $\alpha = .94$ for FSC; Simões, 2012). In the present study, the FCS showed acceptable to good internal consistency ($\alpha = .87$ for FEC, $\alpha = .87$ for FRC and $\alpha = .79$ for FSC).

1.3.1.2. Secondary outcome

*1.3.1.2.1. **The Professional Quality of Life Scale - version 5** (ProQOL-v5; original version by Stamm, 2009; Portuguese version by Carvalho, 2011).* ProQOL-v5 is a 30-item self-report measure with three subscales measuring Compassion Satisfaction (e.g., I get satisfaction from being able to help people.), Burnout (B; e.g., I feel worn out because of my work as a helper.), and Secondary Traumatic Stress (e.g., I find it difficult to separate my personal life from my life as a helper.). Items are rated on a five-point scale (1 = "never" to 5 = "very often"). In the present study only the Burnout subscale was used. Its original version showed acceptable to good internal consistency ($\alpha = .75$; Stamm, 2009) as well as the Portuguese version ($\alpha = .71$; Carvalho, 2011). In the present study, the Burnout subscale showed acceptable internal consistency ($\alpha = .74$).

1.3.2. Qualitative data collection

Qualitative data collection resorted to a focus group discussion (Nagle & Williams, 2013) that took place in a face-to-face format, one week after treatment completion. The focus group followed a script designed to grasp four domains: 1) the daily application of the practices learnt throughout intervention; 2) the perceived impact that the intervention had in one's life, in one's relationship with oneself and with others (i.e., co-workers and youth at the JDF), or in professional/work variables and on relational/personal ones; 3) perceived difficulties associated with the intervention and practices; and 4) maintenance of knowledge and skills acquired throughout the intervention. The group discussion lasted 1 h and 22 min and was audio-recorded by two recording machines. The focus group was led by the researcher who delivered the intervention program, who had previously established a relationship with participants, in the same space where the intervention sessions had been delivered. Considering participants resistance to engage in tasks in which they may feel exposed and assessed it was deemed that introducing a new and unfamiliar interviewer could compromise both the quality of responses and participant engagement with the focus group itself. To control for possible bias, a third party was present to acknowledge and intervene if noticing that the facilitator was somehow leading or biasing the group responses. This other researcher did not play a moderator role, but rather manually recorded some key ideas arising from the group discussion.

1.4. Procedures

This study was approved by the Ethics Committee of the Faculty of Psychology and Educational Sciences of the University of Coimbra as well as by the Portuguese Juvenile Justice services (Ministry of Justice). The ethical principles of the Declaration of Helsinki and the applicable national laws and regulations were followed.

From the six Portuguese JDF, two were randomly selected to participate in this pilot study; one was allocated to the TG, and the other was allocated to the WCG. All eligible professionals from both JDF were invited to participate in this study.

To assure confidentiality and anonymity of the data, the following procedures were carried out: 1) create a code in each research protocol; 2) unpair the research protocol from the informed consent; 3) collect personal data strictly necessary for research purposes; 4) analyze data exclusively in a collective way; 5) use of respondent-specific codes to link data from one time-point to the next one.

Participants from both groups who consented to participate were assessed at baseline with a set of self-report measures (cf. Measures). Participants in the TG were assessed before the first session of the program (baseline assessment) and right after its *terminus* (i.e., post-treatment assessment—about 3 months after baseline assessment). Participants in the WCG were assessed with the same time interval and using the same self-report measures. For TG, the same intervention session was offered twice a week, and participants could choose to attend whichever session best suited their availability each week. As a result, the groups, ranging from 6 to 8 participants, were heterogeneous, with participants attending sessions alongside others who were also available at that specific time. In addition, all TG participants were invited to participate in a focus group at the end of MSC_JDF delivery; those available comprised a subsample of TG with whom qualitative data was collected.

The TG received the MSC_JDF (cf. Intervention), delivered by a

psychologist with extensive experience in the development, implementation, and evaluation of both individual and group interventions in forensic settings. Specifically, this psychologist was trained in the MSC Program and has over eight years of experience applying interventions based on contextual therapies. Moreover, during the delivery of the intervention, the psychologist received weekly clinical supervision from two senior therapists on contextual therapies, one of them being a certified teacher of the MSC program, with extensive experience on the development, implementation, and efficacy testing of intervention programs in juvenile justice contexts, targeting both young people/adults and professionals working in these environments. Participants in the WCG were informed that they would receive the intervention after the study's completion, on a date to be later agreed with Portuguese Minister of Justice.

To ensure treatment fidelity and considering that it was not possible to have a third party assessing the sessions, the research team adopted several strategies. In addition to the expertise of the psychologist who led the sessions and the weekly supervision meetings with senior experts, an assessment document was developed to be completed by the facilitator at the end of each session. This document evaluated the extent to which the objectives of each section were achieved, using a scale from 1 (not fulfilled) to 10 (fully fulfilled). These documents were then reviewed weekly, together with the senior supervisors, and no significant deviations in treatment fidelity were identified. Lastly, the MSC_JDF was carefully structured and manualized, which contributed, at least partially, to ensuring treatment integrity.

1.5. Data analysis

1.5.1. Quantitative data

The IBM SPSS Statistics v.23 was used for quantitative preliminary data analyses carried out to ascertain the group's comparability at baseline and included comparisons between groups on sociodemographic variables (i.e., age; sex; years of education; marital status; nationality; professional role; and years of service in JDF) and outcome measures. Independent-samples tests using the Mann-Whitney *U* test or chi-square tests were conducted, depending on the nature of the data. For primary outcomes (i.e., self-compassion, mindfulness and FBRs to compassion) were evaluated. To control for Type I error, Bonferroni correction was applied, resulting in an adjusted significance threshold of $p < .02$ (.05/3, rounded to two decimal places) for primary outcomes. The secondary outcome (i.e., burnout) was analyzed with $\alpha = .05$.

To account for the longitudinal structure of the data, Linear mixed-effects models (LMMs) were applied when assessing treatment outcomes. Linear mixed models were computed using the lme4 package (Bates et al., 2015) in the statistical computing environment R (R Core Team, 2023). These longitudinal models are known to yield reliable results also for small sample sizes with repeated measures (Muth et al., 2016). LMMs were fitted for each outcome variable, including fixed effects for Time (pre vs. post), Group (intervention vs. control), and their interaction (Time × Group), with random intercepts for participant ID. To ensure the validity of the model results, assumptions were systematically checked. Residual plots were visually inspected to assess linearity and homoscedasticity. The normality of residuals was evaluated using Q-Q plots and histograms. Multicollinearity among predictors was assessed by calculating variance inflation factors (VIF). Influential observations were identified by computing Cook's distance for each participant, with values above .2 considered potentially influential. Additionally, residual trends over time for individual participants were plotted to examine the independence of residuals and to detect any autocorrelation. Effect estimates for the time variable (baseline as reference category) represent adjusted difference toward pre-intervention and are reported with corresponding 95 % confidence intervals (CI). Effect sizes were calculated using Cohen's d based on the coefficients from the linear mixed model, therefore taking the correlation between the observations into account. The guidelines for the interpretation of effect sizes were as follows: .2 small, .5 moderate, and .8 large (Cohen, 1988).

The linearity assumption was violated for self-compassion, for FBRs of receiving compassion, for for FBRs of self-compassion and for mindfulness, while homoscedasticity was not met for self-compassion, for FBRs of receiving compassion, for FBRs of self-compassion and for burnout. The assumption of normally distributed residuals was violated for FBRs of self-compassion and for mindfulness. The assumptions of independence of residuals and multicollinearity were satisfied across all models. A few influential observations were identified for each outcome but were retained in the analyses after sensitivity checks. Although robust linear mixed models would have been preferable for outcomes with severe assumption violations, they were not used because standard inferential statistics such as *p*-values are not readily available for these models. Therefore, all analyses were conducted using classical LMMs, and results—particularly for models with violated assumptions—should be interpreted with caution.

Additionally, individual trajectories were also visualized using spaghetti plots, where each line represents participant's progression across measurement points, allowing the identification of individual variability and trends within the data, and complementing group-level statistical analyses by highlighting heterogeneity in longitudinal patterns.

As this was a pilot study conducted in juvenile detention facilities, the sample size was inherently limited by the number of eligible participants available within the institutions. Accordingly, no *a priori* power analysis was conducted, as the primary goal was to explore the implementation and potential effects of the intervention under real-world conditions. Post-hoc power analysis was instead used to evaluate the sensitivity of the final sample. Post-hoc power analysis, considering 29 participants, revealed a power of .74 for medium effects ($f = .25$), assuming $\alpha = .05$ and a repeated-measures ANOVA design. Although the statistical power for detecting medium effects (74 %) falls slightly below the conventional 80 % threshold (Cohen, 1988), it may be considered acceptable in the context of a pilot study, given that its primary aim is to estimate preliminary effect sizes and confidence intervals rather than to definitively test hypotheses or achieve confirmatory power levels $\geq$.80 (Kunselman, 2024; Lee et al., 2014).

1.6. Qualitative data

Qualitative data were analyzed using thematic analyses, which is a method that allows to identify, analyze and report patterns/themes that emerge within data, thus organizing and describing data in rich detail (Braun & Clarke, 2006, 2013). According to the Thematic Analysis (TA) procedure recommended by Braun and Clarke (2006, 2013), data collected in audio format were transcribed individually and in parallel by two members of the research team. Verbal and non-verbal data (e.g., silences) were transcribed *verbatim*, aiming to provide a faithful account of the original discussion. Subsequently, all elements involved in the analysis became familiar with the data, both through repeated and active reading of the transcribed data and through repeated listening of the focus group audio record. This repeated reading and listening occurred for all members of the research team before and during the coding/thematic processes. Data analysis was carried out using a TA inductive analytic method: the identified codes emerged based on repeated reading of the collected data and were strongly linked to that data (Braun & Clarke, 2013). After transcription, two members of the research team independently organized the data into groups of similar meanings (i.e., codes); whenever divergences in relevant codes emerged, a third member of the research team helped to reach consensus in the definition of some codes/sub codes or in the selection of their representative verbalization. The coded verbalizations and the list of codes were compared and reviewed by both elements resulting in a final list of codes and sub-codes. Based on that final list, two other members of the research team independently coded all verbalizations that they considered representative of each code to find/define the theme list. At the

end, the coding was discussed to reach a consensual codification (i.e., final themes and codes list) as presented in the present study (cf. Table 5). All stages of qualitative data analysis were performed manually, i.e., without any software).

2. Results

2.1. Recruitment and retention

From the 33 available professionals from both JDF, 32 accepted to participate in this study (1 professional from the TG JDF refused to participate): 14 professionals from one of the JDF (4 technical and 10 education staff) integrated the TG and 18 professionals from the other JDF (7 technical and 11 education staff) integrated the WCG (see Table 2). TG participants were aged between 23 and 59 years old (M = 44.29; SD = 10.03; mostly men (n = 10; 71.4 %), with at least 12 years of education (57.1 % completed high school and 42.9 % completed college studies) and with a mean of 10.79 years of work at the JDF (SD = 10.27). WCG participants were aged between 26 and 68 years old (M = 51; SD = 11.59), mostly women (n = 8; 55.6 %), with at least 12 years of education (33.3 % completed high school and complete college studies 66.7 %) and with a mean of 19.5 years of service (SD = 12.93). All participants completed the baseline assessment. The post-treatment assessment was completed by 13 participants from the TG; (92.86 %; 1 participant declined further participation) and by 16 participants from the WCG (88.89 %; 1 participant declined further participation, and another had retired).

A subsample of the TG, (n = 6; 3 technical and 3 education professionals) was available and consented to participate in the focus group. These participants were mainly women (n = 4; 66,7 %), aged between 23 and 52 years old (M = 41.7, SD = 12.2), with at least 12 years of education (16.7 % completed college studies and 83.3 % completed high school) and worked at the JDF at least for a year (M = 6; SD = 8.1).

2.2. Baseline differences

Normality tests were run, using the Shapiro-Wilk test, given the sample size. Results showed that two variables (i.e., years of service and FBRs of self-compassion) did not follow a normal distribution (both with p-values of .01), while the remaining variables did present a normal distribution (with p-values ranging from .07 for FBRs of receiving compassion to .91 for mindfulness). Considering these results and the small sample size, we opted to use the non-parametric Mann-Whitney test for all group comparisons. TG and WCG participants were compared on sociodemographic variables (i.e., sex, age, years of education, nationality, marital status, years of service at the JDF, and professional role) at baseline assessment. As presented in Table 2, no significant differences between groups were found for most variables, except for age and years of service, with WCG participants being older and working at a JDF longer than the TG participants. Baseline differences between groups were also tested for the outcome quantitative measures (i.e., self-compassion, mindfulness, fears of compassion and burnout; see Table 3). TG and WCG did not present significant differences for most variables (all p > .02; see Table 3), except for burnout levels, with WCG presenting higher levels of burnout when compared to TG.

2.3. Treatment fidelity

Overall, session fidelity was high. Most sessions were delivered in full accordance with the manual, with minor deviations observed in sessions 2, 4, and 10, where 94.5 % of the planned exercises were completed. Adherence to session structure was rated positively, with mean scores ranging from 8.5 to 9.5 on a 0–10 scale.

2.4. Treatment effects: quantitative data

To examine the effects of the MSC_JDF program on primary (i.e., self-compassion, mindfulness and FBRs of compassion) and secondary outcomes (i.e., burnout) among professionals working in Portuguese JDF, LMMs were conducted for each outcome. All models included fixed effects for Time (pre vs. post), Group (intervention vs. control), and their interaction (Time × Group), with random intercepts for participant ID. Age and years of service were included as covariates in all models, given the groups differed in these variables at baseline. Additionally, baseline burnout was included as a covariate for all outcomes except for burnout, where it served as the dependent variable. Random intercepts accounted for repeated measures within participants.

Among the personal indicators assessed, only FBRs of giving compassion showed significant effects. A significant Time × Group interaction was found (p < .001), along with a significant main effect of

Table 2
Demographic features by group.

	Treatment group		Waiting list control group		U	z	p	rMW
	M	SD	M	SD				
Age	44.29	10.03	51.00	11.59	72.50	−2.03	.04	.36
Years of service in JDF	10.79	10.27	19.50	12.93	75.00	−1.94	.05	.34
	n	%	n	%	Fisher's	p	Cramer's V	
Sex								
Male	10	71.4	8	44.4	2.33	.13	.27	
Female	4	28.6	10	55.6				
Marital Status								
Single	4	28.6	5	27.8	1.43	.70	.21	
Married	9	64.2	12	66.6				
Divorced	1	7.1	1	5.6				
Education degree								
High School	8	57.1	6	33.3	2.83	.24	.30	
University education	6	42.9	12	66.7				
Professional Role								
Technical	1	7.1	4	22.2	1.37	.85	.21	
Educational	10	71.4	11	61.1				
Coordinator	1	7.1	1	5.6				
Director	1	7.1	1	5.6				
Psychologist	1	7.1	1	5.6				
Nationality								
Portuguese	14	100	17	94.4	.80	.37	.16	
PALOP	0	0	1	5.6				

Table 3
Baseline differences on the outcome measures and post-treatment means and standardized deviations on the outcome measures.

	Pre-intervention				Group comparisons at pre-intervention				Post-intervention			
	TG		WCG		U	*z*	*p*	*rMW*	TG		WCG	
	M	*SD*	*M*	*SD*					*M*	*SD*	*M*	*SD*
Self-Compassion	83.21	12.17	86.44	12.45	106.00	−.76	.46	.13	86.38	11.24	91.38	13.99
Mindfulness	33.36	3.77	34.00	6.20	113.00	−.50	.64	.09	35.08	5.07	35.75	6.17
FBRs of Compassion												
FBRGC	16.79	8.42	17.39	8.96	124.50	.06	.96	.01	13.54	7.67	19.94	8.54
FBRRC	10.21	9.40	13.33	8.85	102.50	−.89	.38	.16	10.00	8.36	13.13	10.22
FBRSC	6.79	6.96	8.28	6.12	101.00	−.95	.36	.17	8.31	8.64	8.50	10.28
ProQOL-v5												
Burnout	27.93	3.17	30.61	3.55	75.50	−1.93	.05	.34	28.54	3.23	29.50	2.94

Note. Bonferroni-adjusted significance threshold: $p < .02$; TG = treatment group; WCG = waiting list control group; FBR = Fears Blocks and Resistances to Compassion; FBRGC = Fears Blocks and Resistances to Giving Compassion; FBRRC = Fears Blocks and Resistances to Receiving Compassion; FBRSC = Fears Blocks and Resistances to Self-Compassion; ProQOL-v5 – Professional Quality of Life Scale – version 5.

Time ($p = .01$). Pairwise comparisons were conducted for FCSD to identify the source of these effects. A significant reduction in FBRs of giving compassion was observed within the TG (estimate = 3.91, SE = 1.47, $p = .01$). Furthermore, the TG presented significantly lower FBRs of giving compassion scores than the WCG at post-intervention (estimate = −7.07, SE = 3.05, $p = .03$). No significant change was observed in the WCG ($p = .06$).

No significant interaction effects were observed for the remaining variables (i.e., self-compassion ($p = .67$), mindfulness ($p = .58$), FBRs of receiving compassion ($p = .41$), FBRs of self-compassion ($p = .78$) and burnout ($p = .73$). Similarly, no significant main effects of Time were found (self-compassion ($p = .08$), mindfulness ($p = .08$), FBRs of receiving compassion ($p = .60$), FBRs of self-compassion ($p = .51$) and burnout ($p = .73$). Considering the main effect of group, only the burnout subscale showed a significant main effect of group ($\beta = 6.31$, $p = .01$), with a large effect size, indicating consistently higher burnout in the WCG. For the remaining variables the main effect of group was not statistically significant ($p > .05$). All results are presented in Table 4.

Spaghetti plots showing individual-level trajectories for each significant outcome are presented in Fig. 1. Visual inspection of individual trajectories revealed considerable heterogeneity across outcomes. In the treatment group, most participants showed increases in mindfulness and reductions in FBR of giving compassion and on FBR of self-compassion, whereas changes in self-compassion, FBR of receiving compassion, and burnout were mixed or minimal. In the WCG, trajectories were largely flat with occasional idiosyncratic changes. These plots highlight marked variability in baseline levels and slopes, underscoring that mean effects may mask substantial individual differences.

Table 4
Summary of linear mixed model results for MSC_JDF intervention.

Outcome effects	*b*	*SE*	*t (df)*	*p*	*d*
Self-compassion					
Time* Group	−1.58	3.67	−.43 (27.30)	.67	−.10
Time	4.95	2.73	1.81 (27.21)	.08	.41
Group	−1.34	5.82	−.23 (32.74)	.82	−.08
Mindfulness					
Time* Group	−.79	1.43	−.55 (27.86)	.58	−.15
Time	1.93	1.06	1.82 (27.77)	.08	.41
Group	−2.77	2.26	−1.22 (33.28)	.23	−.42
FBRGC					
Time* Group	6.50	1.98	3.28 (27.62)	<.00	.78
Time	−3.92	1.47	−2.66 (27.56)	.01	.59
Group	.51	3.84	.13 (31.46)	.89	.05
FBRRC					
Time* Group	1.74	2.06	.84 (27.33)	.41	.19
Time	−.81	1.53	−.53 (27.28)	.60	−.12
Group	3.37	4.23	.80 (30.85)	.43	.29
FBRSC					
Time* Group	−.74	2.68	−.28 (28.28)	.78	−.07
Time	1.34	1.99	.67 (28.16)	.51	.15
Group	.77	3.60	.21 (35.67)	.83	.07
Burnout					
Time* Group	−.50	1.47	−.34 (27.77)	.74	−.08
Time	.38	1.09	.35 (27.66)	.73	.09
Group	6.31	2.19	2.88 (33.80)	.01	.99

Note. *b* = unstandardized coefficient; *SE* = standard error; *df* = degrees of freedom; *d* = Cohen's d; FBRGC = Fears Blocks and Resistances to Giving Compassion; FBRRC = Fears Blocks and Resistances to Receiving Compassion; FBRSC = Fears Blocks and Resistances to Self-Compassion.

2.5. Treatment effects: qualitative data

Thematic analysis identified four themes relating to participants' perception about the impact of the MSC_JDF: Self-compassion, Mindfulness, Compassion towards others and Symptoms of burnout. Themes and respective sub-themes, as well as exemplificative quotes and the proportion of words uttered in each theme/subtheme are presented in Table 5. The words proportion was computed using the following formula: (a/b) x 100, in which a corresponds to the number of words pronounced in the sub-theme and b refers to the total number of words in each of the four identified themes (e.g., in the burnout theme, for the sub-theme "Feeling overwhelmed", $a = 515$ and $b = 5865$, therefore, the proportion is: 515/5865 x 100 = 8.78).

2.6. Theme a - self-compassion

The first theme identified was Self-compassion (cf., Table 5) encompassing participant's verbalizations about strategies that they began to use, after receiving the intervention program, to help them deal with or prevent some difficult situations or emotional states. In concrete, participants stated that, after the intervention, they resorted more to self-kindness (i.e., subtheme A1) including practicing several exercises used in the program and resorting to self-kindness when coping with difficult experiences, both in professional and in personal contexts. Moreover, participants referred that, after intervention, they tended to validate and empathize more with their own feelings, thoughts, and behaviors and recognized improvements in their knowledge about difficult emotions and on preventing automatic responses to those same emotions (i.e., subtheme A2). In line with this, participants expressed that they now tend to be more self-accepting, including when dealing with difficult emotions or when they made mistakes (i.e., subtheme A3). Participants also acknowledged greater openness in sharing their experiences with others and in listening to the experiences of others (both in professional and in personal contexts, i.e., subtheme A4), contributing to an increased common humanity experience (i.e., subtheme A5) as well as feelings of closeness and connection with others, especially with work colleagues (i.e., subtheme A6). Moreover, participants acknowledged a decrease in over-identification (i.e., subtheme A7) and in self-criticism, hence acting towards themselves in a less self-judgmental and harsh way (i.e., subtheme A8).

Table 5
Overarching themes, themes and subthemes, frequency of data extracts, and illustrative quotes.

Themes (%)	Sub-themes (%)	Quotes
A. Self-Compassion (27.83 %)	1. Self-Kindness (7.83 %)	1. "(…) it really helped me, for example, the soothing touch and even the audios themselves, I listened to them, yes, I listened to them." (P2; P3). 2. "(…) taking a few seconds to pause, even for us, to adjust ourselves and then be able to adjust to them [to youth]. At least, there is now more attention to that, more consideration (…) And also a little bit of the notion that we need that pause. Okay, enough of being there, I need to step back a little bit, to get out, to stop (…)" (P4; P6).
	2. Validation and Empathy (3.44 %)	1. "And sometimes it can happen to us, it's normal that it happens to us, we're not always okay, nor do we have to be always okay (…)" (P5; P3). 2. "But that was one of the things I learned here. It's completely impossible to run from those feelings that people trigger in us, whether they are good or bad feelings (…)" (P1; P6).
	3. Self-Acceptance and Equanimity (3.77 %)	1. "I simply accept that I can make mistakes, there it is, the question of acceptance (…) I understand that I may not be the best for everyone, but I'm in peace with myself (…) and I accept it, just as I accept that sometimes I can make mistakes (…)" (P5; P6). 2. "(…) at that moment, it was the best that I could do with what I had, and with what I knew. It was the best I could do! I accept that I might be wrong because I naturally make mistakes." (P1; P2).
	4. Openness to experience (5.37 %)	1. "(…) here, we were allowed to talk more about our experiences, listening to others, sharing things or not sharing if we did not want to (…) I think that it helped us and allowed me to look towards others in a different way." (P4; P6). 2. "Important reflections and self-disclosures really happened, inside and outside of the group, which, perhaps, at another moment we would never have done." (P1; P5).
	5. Common Humanity (3.53 %)	1. "It's obvious that it helps us at the team level, because when we shared our perspectives, perhaps we started to realize that our ideas are not that different after all … sometimes we just might not express them in the same way (…)" (P5; P6). 2. "There are differences in how each one of us does things, in each one's professional content, but we all work towards the same goal (…) eventually, you realize we are doing the same things (…) I do it with a wooden spoon, she does it with another tool. Each one of us has their own tools (…)" (P1; P2).
	6. Proximity and connection to others (1.16 %)	1. "Yes, in the relationship with colleagues, I think so (…) Greater closeness … I didn't have much closeness with some of them (…) I feel that we won affinity (…)" (P2; P4). 2. "But now, in that part, I think there's more closeness. We ask if everything is okay (…) I don't know, it seems that now we really want to know … " (P1; P4).
	7. Over-identification (1.59 %)	1. "(…) when I noticed a reaction to an instruction or to a decision (…) that I took, I was very worried that people would react negatively to it … " (P6). a. "(…) sometimes I felt, now not so much, misunderstood about some things that I had said. But I always blamed myself because I thought that I did not explain myself well enough (…)" (P5).
	8. Decrease in Self-Criticism (1.14 %)	1. "For example, when a youth frustrates me, now I can identify it [that emotion] in myself (…) And I start to deal better with myself. And maybe the words that I say [to myself] are not so harsh or, perhaps, are more assertive. I criticize myself less (…)" (P4; P6). 2. "Perhaps I do not spend so much time martyrizing myself about something … Because it's done, it's already done … It's over!" (P1).
B. Mindfulness (18.19 %)	1. Focus and Attention directed to the present moment (6.48 %)	1. "The breathing as well … Because we often must identify where, in our body, we feel the discomfort. And then we stay there and follow our breathing sensations." (P3; P5). 2. "This is a practice that I have been doing for a few years, even if it is just for 10 min … I sit alone, smoke my cigarette, and drink my water, or my beer, or my glass of wine … whatever it is, I am in that moment. And now I do it more in a more conscious way, and I feel grounded." (P2; P6).

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Table 5 (*continued*)

Themes (%)	Sub-themes (%)	Quotes
	2. Awareness (5.34 %)	1. "The important thing for me, regardless of all of this, is the identification of the problem or the situation that I experienced in that moment. So, if I know how to identify what I am feeling, I can immediately link it with the strategy that I can use or [action I] must take, regardless of these moments or the practices I do." (P4; P6). 3. "I just think that I savor it more. Before I was like "okay, I can go to the break", but now I savor it and I enjoy it more (…) being more aware about my feelings, being alone with myself even if it is just for 2 min" (P1; P3).
	3. Intentionality/purpose (2.81 %)	1. "(…) now I can listen to the [recorded] exercises that we have learned, and bring them to my professional and personal life, and incorporate them with the informal practices that I already had." (P1; P6). 2. "In that little moment of my day, that I take to separate what is work and what is my personal life (…) I always take the opportunity to practice it." (P2; P3).
	4. Decentering and transience (3.56 %)	1. "Currently, I feel that when I leave out that gate, I am now able to think: "Okay! It happened, it's over, I'm not going to keep trying not to think about it anymore". I assume that sometimes I cannot do it, because it is inevitable, but most days I try to do this internal exercise of "okay! That is enough, you do not have to keep thinking about it all the time". And I feel that it helped me." (P3; P4). 2. "(…) I particularly remember to pay special attention to an exercise we did in the sessions, the mountain exercise (…) to revisit those sounds and temperatures, feel everything passing through me and remaining still … and in some way serene myself because that is how it is. Problems come and go and we will still be here." (P6).
C. Compassion towards others (33.59 %)	1. Wisdom (2.47 %)	1. "We started to understand better (…) the points of view of almost everyone. And I think we noticed that there are things that bring us together and I feel that now we are able to respect different points of view (…)" (P1; P5).
		2. "(…) I think that now I try harder to understand their points of view. Before acknowledging their behavior, I try to look at the situation from a different perspective, which is: what led them to behave like this? (…)" (P4; P6).
	2. Validation and Empathy (8.05 %)	1. "(…) There is always a good reason for a bad behavior (…) it does not mean that bad behavior is allowed/acceptable. In fact, most of the time it is not (…) And just the fact that now you think that there is something there … there is the trigger [to that behavior] (…)" (P4; P5). 2. "Giving them their time to also explain to us what they are feeling, because most of the times they act because something is not right or because there is also an internal struggle. (…)" (P1; P3).
	3. Kindness (8.71 %)	3. "(…) but I feel that now I am a lot more understanding and compassionate with them (…) I have more patience, more prudence (…) I try they have a voice, time and space to speak." (P1; P4). 4. "(…) Some of these techniques that can help to soothe the youth, namely the breathing exercises: "let's stop, let's breathe (…) and we'll have a talk in a moment" (…) it's about lowering the physiological systems of the youth allow them to think rationally." (P3; P6).
	4. Common Humanity (4.36 %)	1. "(…) We talked about complicity, we talked about a lot of things, I wanted to talk about trust, which I think is very important. If the team trusts (each other), the problem is not [in any of us]; the problem is within the juvenile detention center, we are all here, and all of us need to work [towards fixing that problem], (…) This is a teamwork (…)" (P2; P5). 2. "(…) that sharing of experiences, sensations, feelings, everything, I think it is something that also benefits us and connects us with the others. And so, we can now better understand the other person, what is she/he feeling, whether it is the same of what we are feeling or not." (P4; P6).
	5. Proximity and connectedness (6.22 %) 6. Openness to experience (3.77 %)	1. "[interactions between colleagues] were all much more formal, and they became a little bit more

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Table 5 (*continued*)

Themes (%)	Sub-themes (%)	Quotes
		informal. This is what I feel." (P1; P5). 2. "[the group intervention program] brought some lightness to the work environment, and it is evident even in those jokes we make, often in the [loving kindness] sentences we say to each other. So, those small gestures introduced some lightness as well as some closeness between us. We do not have to be best friends because we are colleagues at work, and that is okay, but it did change something (…)" (P2; P4). 3. "People also revealed facets that they had not revealed before [in the work context]. Well, that is how it is, people are always a pleasant surprise, aren't they?" (P3; P5). 4. "(…) And this intervention program helped a little bit, when we laugh here … when I exposed myself, we all exposed ourselves (…)" (P1; P4).
D. Burnout symptoms (20.93 %)	1. Feeling overwhelmed (8.78 %)	1. "(…) I came [to the session] but I had the time issue: I had to go to work, I had things to do immediately after." (P2; P5). 2. "For me, it is easy to leave the problems outside and sometimes [the work] is a kind of escape because I completely let [the problems outside of work] go … I do not even think about what I have outside. But the opposite is more difficult." (P4; P6).
	2. Difficulty in letting go the hierarchy and one's professional role (7.5 %)	1. "(…) the technical professionals are closer to reality. In our daily life, it seems like we are [closer to reality], but sometimes it seems like we are not, and this has to do with several issues, namely with communication issues and with understanding what we do and what [the education professionals] do. And I do not know to what extent it isn't much more difficult for [the education professionals] to understand what we do (…). We are all at the same level, but I think it is also important to have this communication. I think being in the group is very important for that reason." (P5; P6). 2. "(…) the technical professionals (…) have management roles (…) they are between the upper and lower part [of the hierarchy]. Those who look from the outside (…) always criticize. An employee always criticizes the boss, but being a boss must be the worst thing in the world" (P5).
	3. Feelings of hopelessness (.7 %)	1. "(…) it is difficult to establish this type of practices and maintain them over time." (P3). 2. "(…) are you asking me if it is still difficult to do this with some coworkers? Yes. In fact, it will never stop being difficult to me" (P6).
	4. Decrease in communication barriers (1.76 %)	1. "(…) there used to be a bit of a barrier which disappeared (…)" (P4; P5). 2. "(…) And this is the communication that I think it is important to have and that is what I was talking about (…) this communication has to exist (…) even in technical terms (…) in the sense of understanding [each other] (…)" (P1; P3).
	5. Decrease in emotional reactivity levels (1.65 %)	1. "(…) and so, the attitude I adopt with the kid is now a bit more assertive (…) because it goes towards the instruction that I want to give them, and it does not convey my emotional state. It is not like it was before." (P3; P4). 2. "Now, I worry less about sulking, whether it came from my colleagues or from the kids, which was something that used to worry me a lot." (P6).

Note. Representative quotes from the table are presented on results description by the code: (e.g., A = Self-Compassion theme), followed by the number of the subtheme (e.g. 2 – corresponding to subtheme number two that is "validation and empathy"). For example, A2 refers to a quote on self-compassion theme, related to the sub-theme validation and empathy. For all subthemes, 2 examples of quotes are always presented. After each quote, there is at least one number, corresponding to the participant that said that sentence (e.g., P1; P2 means that the chosen quote was similarly by participant 1 and 2).

2.7. Theme B - mindfulness

A second theme that emerged was Mindfulness (cf., Table 5), which was referred by participants as a sense of becoming more conscious and aware about their own and others' cognitive, emotional and behavioral processes. Specifically, participants reported that they were now more able to focus their attention on the present moment, becoming more aware when experiencing difficult emotions (i.e., subtheme B1 and B2), intentionally directing attention to some activity/experiences that may help them to be in contact with those emotions/experiences (i.e., subtheme B1 and B3), and also savoring pleasurable experiences (i.e., subtheme B1). Participants also shared that they started to act in this way in accordance with personal purposes/intentionality (i.e., subtheme B3). Finally, participants also reported a greater ability to decenter from their experience and to look at it as an observer, increasing awareness about the transient nature of any experience (i.e., subtheme B4).

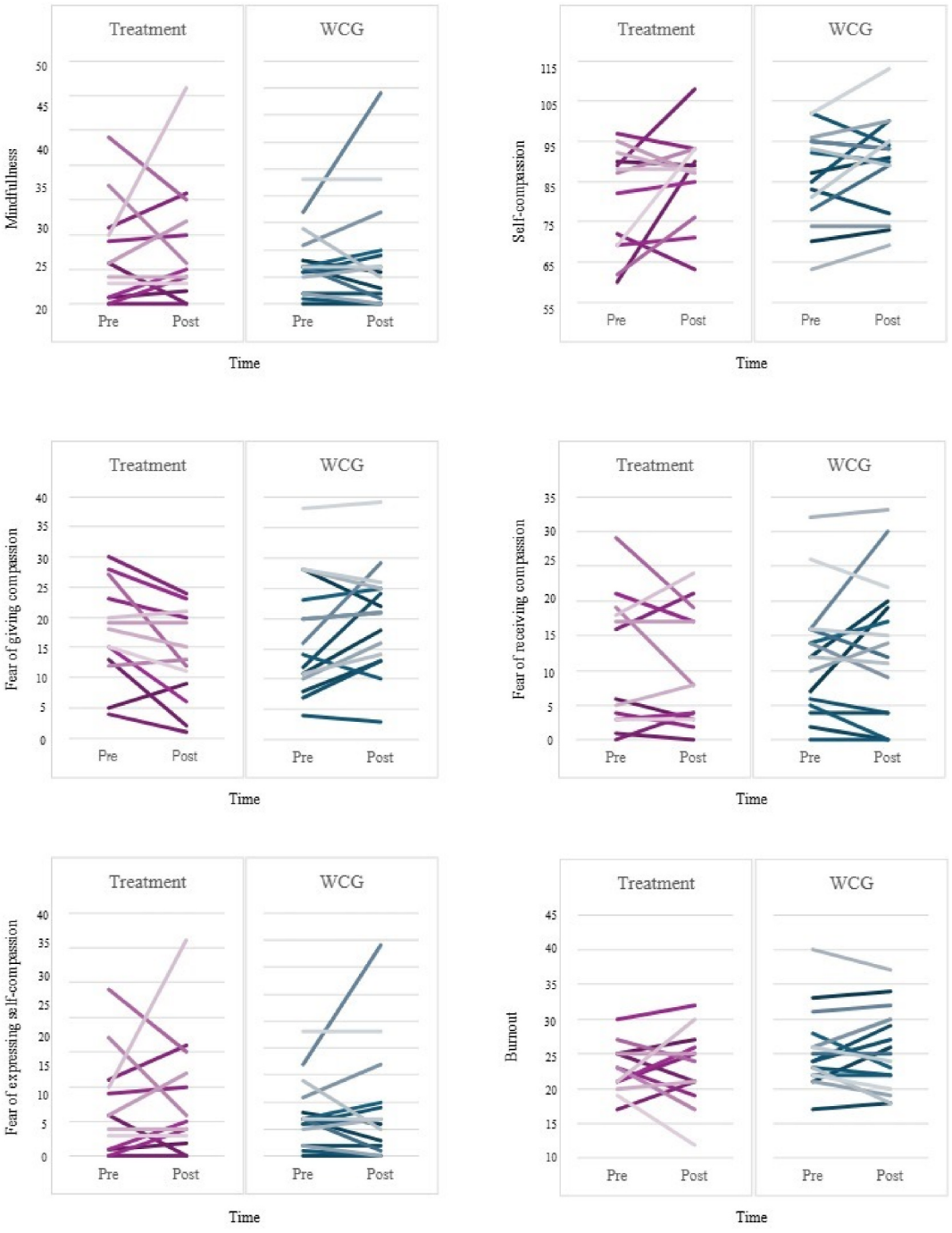

Fig. 1. Individual participants' trajectories across time for each outcome measure, separately for the Treatment and WCG groups.

2.8. Theme C - compassion towards others

The third emerging theme refers to Compassion towards others (cf., Table 5), which reflects a tendency of participants to listen and act in relation to others (i.e., work colleagues and youth) in a more calm and helpful way. Participation in the MSC_JDF group denoted wisdom regarding colleagues and youth experiences (i.e., subtheme C1), as well as being able to more easily empathize, validate, and relate with other's suffering (i.e., subtheme C2) in a kind way (i.e., subtheme C3). Participants also referred that their interactions and relationships with work colleagues became guided by a sense of common humanity (i.e., subtheme C4), which was dynamically reinforced by sharing their feelings, thoughts and experiences (i.e., subtheme C6). Finally, participants pointed out that they felt more connected with each other and that the work environment seemed lighter (i.e., subtheme C5).

2.9. Theme D - symptoms of burnout

The fourth theme was Symptoms of burnout (cf., Table 5), reported by participants as difficulties and challenges related to work that impacted on their self-efficacy. Participants reported greater awareness about some difficulties related to burnout, namely overwhelming feelings regarding the amount of work, as well as difficulties in letting go of some work-related worries (i.e., subtheme D1). They also shared some difficulties related to professional hierarchies/roles (i.e., subtheme D2), as well as hopelessness feelings about continuing to use learned

practices at work and about maintaining a closer relationship with some colleagues (i.e., subtheme D3). In turn, participants said that they felt a decrease in some communication barriers, especially with colleagues (i.e., subtheme D4), as well as a lessening in emotional reactivity, in the interactions both with youth and with work colleagues (i.e., subtheme D5).

3. Discussion

Working at a JDF is challenging, highly demanding, and can negatively impact on the mental health and well-being of these professionals (Baetz et al., 2019; Jolivette et al., 2019; Rhineberger-Dunn & Mack, 2020). Despite this, there is a clear lack of interventions designed to respond specifically to those difficulties (see Evers et al., 2020; Forman-Dolan et al., 2020 for a review). To our best knowledge, there is only one study that tested the efficacy of an intervention with professionals working in JDF (Ekman, 2015). Although of most relevance, this study lacked a control group, which is essential to determine whether observed effects could be truly attributable to the intervention. To address this gap, the current study pilot-tested the efficacy of the MSC_JDF (adapted from MSC; Neff & Germer, 2013) using a mixed-method, pre-post design.

In the current study, the TG and WCG were similar in most sociodemographic and outcome measures at baseline, except for years of service, age, and burnout levels. In specific, WCG participants were older, worked at JDF for a longer time, and reported higher burnout levels than TG participants. This is somehow consistent with the literature, which has been showing that burnout tends to increase with age and is more likely to occur after several years of working in the same context (Baetz et al., 2019; Forman-Dolan et al., 2022; Miller et al., 2024; Sichel et al., 2019).

Concerning intervention effects, quantitative results, supported by both group-level and individual trajectories, showed that TG decreased on FBRs of giving compassion to others, when compared to WCG. Accordingly, participants in the TG verbalized that they felt closer to others (especially with colleagues, but also towards youth) and found it easier to approach others to ask how they were feeling/doing, listening to them, and helping them when in need. Research on (self)compassion-based interventions has been showing that surpassing FBRs is a prerequisite to the development of (self)compassion and that interventions follow this strategy of change (i.e., decreasing FBRs while promoting compassion) can reduce psychological suffering (Kirby et al., 2019; Matos et al., 2023; Petrocchi et al., 2024; Steindl et al., 2023). This result is particularly relevant in forensic settings, where compassion is often equated with weakness and where there is a strong resistance to vulnerability concurrent with a tendency to behave in a 'macho' way (Cheek & Miller, 1983; Dowden & Tellier, 2004; Gilbert et al., 2011; Gilbert et al., 2025; Gilbert & Mascaro, 2017; Wells et al., 2008). Therefore, the observed reduction in fears of giving compassion may represent a promising step toward fostering compassion directed both toward others and oneself." Hence, the MSC_JDF seemed to be able to promote change in the foundations of *a posteriori* compassionate practice, which is a nuclear feature for the development of a compassionate mind.

No significant differences were observed on the remaining quantitative outcome measures (i.e., self-compassion, mindfulness; FBRs of receiving compassion; FBRs of self-compassion, and burnout). Notwithstanding, considering that self-compassion and mindfulness are the core variables targeted by the intervention program, and based on results from previous studies, it was somewhat expected that differences between groups on those variables would occur. Consistently, spaghetti plots did not reveal systematic between-group differences for self-compassion, fear of receiving compassion, and burnout. Visually, however, trajectories in the TG appeared somewhat more coherent and aligned in direction compared with the WCG, suggesting greater within-group consistency, although this was not formally tested. By contrast, for mindfulness and fears of self-compassion, several TG participants showed clear individual improvements, whereas WCG trajectories remained largely flat. These visual patterns indicate that, despite the lack of significant mean-level effects, some participants in the TG benefitted meaningfully from the intervention on primary outcomes. A few reflections may be addressed about these results. Previous research on the impact of MSC in its original or adapted versions (Germer & Neff, 2019; Neff, 2023; Neff et al., 2020; Neff & Germer, 2013) found differences in some of these variables from pre to post-treatment (i.e., improvements in self-compassion and compassion towards others, as well as decreases on stress and burnout; Delaney, 2018; Jiménez-Gómez et al., 2022; Neff et al., 2020; Neff & Germer, 2013). Furthermore, previous works involved community or healthcare professional samples, who face different challenges than those working in forensic settings (Delaney, 2018; Farley & Ware, 2023; Forman-Dolan et al., 2022; Jiménez-Gómez et al., 2022; Neff et al., 2020; Neff & Germer, 2013; Rhineberger-Dunn & Mack, 2020). Also, the fact that intervention sessions occurred during or after work shifts may have hindered treatment effects. Finally, previous research on the impact of MSC was mainly based on female samples, while our TG was composed primarily of male participants. Previous research showed women tend to benefit more from self-compassion and mindfulness interventions, which may be related with their lower levels of self-compassion, and higher levels of stress, burnout and compassion to others, when compared to men (Katz & Toner, 2013; McDonald & Kanske, 2023; Yarnell et al., 2019). Consequently, it is possible that TG participants of the current study, where males prevailed, might have been less malleable to change.

Despite no significant quantitative differences being found between groups on self-compassion, mindfulness, and burnout symptoms, participants verbalized a positive impact of the MSC_JDF on those variables. Self-compassion verbalizations, reflecting participants' perceptions of the impact of MSC_JDF, emerged as the second most frequently reported theme in the qualitative data. TG participants also reported increases in mindfulness levels. Specifically, they described greater awareness of their emotions and associated bodily sensations, as well as a stronger motivation to act more assertively and less critically, both towards themselves and others. This contrast suggests that relevant changes may not have been fully captured by self-report measures, highlighting the added value of the qualitative approach in this study. Moreover, and as some studies suggested (Petrocchi et al., 2024), it may be the case that quantitative changes in (self)compassion and mental health difficulties tend to occur only at follow-up assessment periods, rather than immediately after program completion. The apparent incoherent quantitative and qualitative findings may also be explained by the relative independence of the three flows of compassion (Kirby et al., 2019; Sahndra et al., 2023). Human beings are usually trained and taught from an early age to be attentive, to help, and to be kind to the needs and difficulties of others and, accordingly, change in being compassionate towards others may be easier and come earlier (Germer & Neff, 2019). In turn, self-compassionate attitudes and behaviors are mostly (and wrongly) seen as forms of being selfish, as self-pity or self-indulgency, and the same is true concerning receiving compassion from others (Germer & Neff, 2019; Gilbert et al., 2011; Neff & Germer, 2013). Moreover, these findings may also be partially explained by beliefs that forensic professionals are expected to behave in a "macho" way, viewing compassion as a weakness or flaw, and avoiding asking for help or showing kindness — both to others and to themselves (Cheek & Miller, 1983; Dowden & Tellier, 2004; Gilbert et al., 2011; Gilbert et al., 2025; Gilbert & Mascaro, 2017; Wells et al., 2008). In this sense, it is somehow expected that improvements on mindfulness and on self-compassion may take longer to occur because they require us to relate with ourselves (and with others) in a way we are not used to (Germer & Neff, 2019; Sahndra et al., 2023). Alternatively, participants' verbalizations may be a more lenient way of manifesting incipient changes, as they are perceived in one's own experience.

In their own words, TG participants reported that, by the end of the

program, they acted in a more compassionate way towards others, both colleagues and youth, as well as towards themselves. They felt wiser about youths' challenging behaviors, allowing them to act towards youth in a more validating, empathic, and kind way. Concerning relationships with colleagues, participants easily recognized their common humanity experience at the JDF, fostering a sense of proximity and connectedness. These findings align with previous research that showed that people tended to act in a more empathic and compassionate way towards others after receiving the MSC program (Delaney, 2018; Jiménez-Goméz, 2022; Neff et al., 2020). Regarding self-compassion, participants reported using some of the learned strategies (i.e., soothing touch and breathing exercises) to calm and soothe themselves when facing challenging situations. They reported an increased ability to validate and empathize with their own emotions, mistakes, and flaws through the lens of common humanity, resulting in feeling less overwhelmed and becoming less self-critical. These findings align with Neff and Germer (2013) work, linking the use of some practices to enhanced self-compassionate actions. Participants also became more mindful, reporting more awareness about their own and others' thoughts, emotions, and behaviors, improved handling of difficult emotions, intentional engagement in meaningful activities, savoring positive experiences and observing their experiences from a more detached perspective. As mindfulness is essential for developing (self)compassion (Germer & Neff, 2019; Neff, 2023; Neff et al., 2020), these findings are noteworthy because conscious awareness is crucial to engage in (self) compassionate responses (Germer & Neff, 2019; Kirby et al., 2019; Matos et al., 2023; Steindl et al., 2023).

As stated above, no significant pre-to-post differences in burnout symptoms were observed within either group. However, a significant main effect of Group was found, with the WCG consistently presenting higher levels of burnout across both time points. While this may initially suggest limited intervention effects, qualitative data from the TG offer additional insight. Despite the absence of quantitative changes, TG participants described increased awareness and consciousness (i.e., mindfulness) of burnout-related challenges—such as work overload, difficulty disengaging from professional demands, and frustration regarding workplace change. These accounts may not indicate a deterioration in well-being, but rather a heightened recognition of pre-existing difficulties. Such awareness aligns with the theoretical mechanisms of compassion-based interventions, in which recognizing one's suffering is a foundational step toward developing self-compassion (Germer & Neff, 2019; Neff, 2023). Importantly, this shift in awareness occurred without a statistically significant increase in reported burnout, suggesting that participants may have become more attuned to their inner experience without an actual worsening of symptoms. TG participants also reported fewer interpersonal barriers and less emotional reactivity in their work relationships, which may reflect early signs of change. These patterns are consistent with literature suggesting that decreases in burnout (and other psychopathological) symptoms tend to occur after reductions in FBRs to compassion and increases in (self-)compassion, which tend to occur a few months after intervention completion (Gilbert, 2020; Kirby et al., 2019; Petrocchi et al., 2024). It is possible that the pre/post-treatment design of this pilot study may not have captured these changes. Finally, TG participants reported increased awareness of burnout-related challenges, such as work overwhelm, difficulty letting go of work worries, and hopelessness about applying learned practices or improving work relationships. However, after the program, they reported fewer communication barriers, especially with colleagues, and reduced emotional reactivity in interactions with youth and coworkers. Although awareness of burnout increased, signs of symptom reduction were also evident, supporting previous research showing that decreases in burnout symptoms enhance professionals' ability to empathize with and act compassionately towards others, including colleagues and those under their care (Dev et al., 2018; Neff et al., 2020; Neff & Germer, 2013; Sinclair, Kondejewski, et al., 2017).

Current findings must be interpreted carefully, taking into consideration some limitations. This is a pilot study that had a small sample size, and did not include follow-up assessments, limiting the analysis and the generalization of findings to other samples and the test of intervention effects over time. Future studies should resort to more robust designs (i.e., Randomized Controlled Trial), a larger and homogenous sample, and follow-up assessments. In line with this, and considering previous research, it would also be useful to explore the number and quality of the formal/informal practices carried out by the participants in the time between the sessions. Considering sex differences on TG and WCG, alike its potential impact on outcome variables, future research should enroll sex balanced samples, both in qualitative and quantitative approaches. Although this study used both qualitative (i.e., focus group) and quantitative methods (i.e., LMM) to assess the MSC_JDF efficacy, treatment effects were only assessed through the participants' perspective. Alternatively, it would be important to include the perspective of the youth these professionals work with, to ascertain if intrapersonal change impacts professional interactions and the quality of care. Another limitation refers to the assessment of treatment integrity, which was only partially ensured. Future studies should aim to rate intervention sessions evaluated by independent experts. Regarding focus group, some limitations should be noted. The fact that it was conducted by the psychologist who delivered the intervention may be considered a limitation. Though this may have introduced some response bias, it was deemed necessary to assure participants availability and open participation. Moreover, the focus group was composed predominantly of women, whereas the TG was mainly composed of men, which may have influenced the results. Future research should aim to collect quantitative and qualitative data from samples balanced by sex.

Despite the mentioned limitations, findings from this study point to the MSC_JDF as a promising approach to address the needs and difficulties of JDF professionals, at least by helping them develop the foundations of a compassionate way of relating to themselves and others. The challenging and demanding work at JDF requires a team composed of emotionally stable professionals, capable of being aware of their own suffering and the suffering of others (both colleagues and youth) and of using (self)compassionate skills to prevent or address that suffering. A compassionate team can dynamically increase the well-being of all professionals and youth within JDF, accurately and timely addressing potential needs/difficulties, while also enhancing the odds of an effective rehabilitation of youth under their care.

CRediT authorship contribution statement

Marlene Paulo: Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Paula Vagos:** Writing – review & editing, Methodology, Formal analysis, Conceptualization. **Diana Ribeiro da Silva:** Writing – review & editing, Methodology, Conceptualization. **Paula Castilho:** Writing – review & editing, Supervision, Conceptualization. **Juliana Soares:** Methodology, Data curation. **Rúben Sousa:** Methodology, Data curation. **Fynnja Hellmig:** Writing – original draft, Formal analysis. **Daniel Rijo:** Writing – review & editing, Supervision, Conceptualization.

Declaration of competing interest

The authors declare no competing interests. The first author holds a PhD Research Studentship (2020.06452.BD; https://doi.org/10.54499/2020.06452.BD), sponsored by the Portuguese Foundation for Science and Technology (FCT).

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