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Mindfulness and social identity: Predicting well-being in a high-stress environment

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Abstract

Social identity processes and mindfulness are two important predictors of well-being. Yet, to date, these predictors have been studied independently, within separate research fields. This paper aims to provide an initial integration of these two research fields. Our research was conducted in a context characterized by multiple chronic stressors: A maximum security prison in Kenya. In particular, two studies measured social identification with a mindfulness group and dispositional mindfulness. We investigated the effects of these constructs on three well-being measures: mental well-being, resilience (Studies 1 & 2), and reduction of substance use (Study 2). Our results, replicated across two studies (Study 1: $N = 82$, Study 2: $N = 145$), revealed that both social identification with the mindfulness group and mindfulness predicted psychological outcomes. Social identification explained variance in mental well-being and resilience in addition to the variance explained by mindfulness. Study 2 additionally showed that both identification and mindfulness were positively related to a reduction in substance use. However, when examined together, social identification held all the explanatory power, and mindfulness was no longer a significant predictor. From the overall results, we argue that social identity processes can be fruitfully combined with mindfulness in well-being programs delivered in high-stress environments such as prisons. Theoretical and practical implications are discussed.

1 | INTRODUCTION

> Mindfulness is a key resource that will help *us* be *our* best. (inmate in the largest maximum security prison in Kenya)

Research has shown that group memberships, and associated social identities, contribute to positive well-being (Haslam, Cruwys, Haslam, Dingle, & Chang, 2016; Haslam, Jetten, Cruwys, Dingle, & Haslam, 2018; Haslam, Haslam, Jetten, Cruwys, & Dingle, in press; Jetten, Haslam, Haslam, Dingle, & Jones, 2014; Jetten et al., 2017). Social identities can make people more resilient, particularly when challenged (Postmes & Jetten, 2006). In parallel, a burgeoning body of empirical evidence shows that mindfulness enhances mental well-being and resilience (eg, Brown & Ryan, 2003; Christopher et al., 2016; Jha, Morrison, Parker, & Stanley, 2017; Nila, Holt, Ditzen, & Aguilar-Raab, 2016; Shonin, Van Gordon, Dunn, Singh, & Griffiths, 2014; Spinelli, Wisener, & Khoury, 2019). Yet, in spite of predicting the same psychological outcomes, there is no research examining the effects of social identity and mindfulness simultaneously. Our paper aims to fill

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this gap and explore the combined and differential role of both constructs when predicting well-being.

The current research has three main goals. First, our research aims to expand the empirical evidence on the social identity approach to health and well-being, in particular, the "social cure" literature (Jetten, Haslam, & Haslam, 2012) in an applied context. Second, our research aims to contribute to the mindfulness literature by adding to the emergent body of work on mindfulness in high-stress contexts such as prisons. Third, we aim to combine the fields of social identity with mindfulness and explore the contribution of social identification and dispositional mindfulness to well-being outcomes.

The two studies presented in the current paper were conducted after prison inmates took part in a group-based mindfulness training program (for information about the training see Mahdon, Heilbrunn, Adarves-Yorno, & Jones, 2017). The training aimed to enhance inmates' mental well-being and resilience by increasing their mindfulness capability and their social identification with a mindful group. In this prison setting, we examined the predictive power of mindfulness and identification with a mindfulness identity. The outcome variables were two psychological measures: mental well-being and resilience (Study 1 & 2) and self-reported substance use, which served as a proxy behavioral indicator of well-being (Study 2).

2 | MENTAL WELL-BEING, RESILIENCE, AND SUBSTANCE USE

Mental well-being, resilience, and a reduction in substance use are priority areas for health in prisons according to the World Health Organization (Enggist, Møller, Galea, & Udesen, 2014). This assessment reflects the higher percentage of prisoners suffering from mental health problems and substance use disorder than the nonprison population (Fazel, Hayes, Bartellas, Clerici, & Trestman, 2016). Furthermore, promoting mental well-being, resilience, and a reduction in substance use in prisons has been shown to improve reintegration into society and reduce re-offending (e.g., Koehler, Humphreys, Akoensi, de Ribera, & Loesel, 2014). Problematic substance use has high comorbidity rates with mental health disorders, particularly depression and anxiety (Lai, Cleary, Sitharthan, & Hunt, 2015).

Mental well-being is a complex construct, which covers concepts of hedonic and eudemonic well-being as well as both affect and psychological functioning (Ryan & Deci, 2001). Mental well-being has been found to have major consequences for wider health and social outcomes (Huppert, 2005). Resilience refers to the positive pole of individual differences in people's response to challenges and adversity (Rutter, 1987). Researchers have argued that resilient individuals have the capacity to recover more quickly from stressful events (Ryff & Singer, 2003). Resilience is found to be positively correlated with positive affect and life satisfaction, and inversely related to negative affect (Hu, Zhang, & Wang, 2015; Liu, Wang, Zhou, & Li, 2014).

Mental well-being, resilience, and the reduction of substance use have clear relevance for public health, and have therefore, been a focus of research in both the social identity literature and the mindfulness literature. However, relatively little research in each area has been conducted in high-stress environments, and none to our knowledge has examined the combined effects of social identification and mindfulness.

3 | SOCIAL IDENTITY

Social identity refers to "the individual's knowledge that he [or she] belongs to certain social groups together with some emotional and value significance to him [or her] of the group membership" (Tajfel, 1972, p. 31). Social identities are an integral part of one's own identity (Tajfel & Turner, 1979). There is a substantial body of empirical evidence that demonstrates that group memberships (and the social identities derived from belonging to these groups) affect health and well-being (Haslam et al., 2016, 2018; Jetten et al., 2014, 2017). When groups provide a person with direction, meaning, and purpose, then, this will typically have a positive effect for that individual's well-being (Haslam, Jetten, Postmes, & Haslam, 2009). Such findings have led to group memberships being described as potential "social cures" (Jetten et al., 2012).

From a social identity perspective, group membership serves as a psychological resource that can benefit well-being and resilience (Haslam et al., 2018; Scarf et al., 2016). Indeed, research has shown that simply reminding individuals of their group memberships can increase resilience to stress (Jones & Jetten, 2011). Furthermore, social identity seems to be particularly critical when facing stressors such as social stigma (Branscombe, Schmitt, & Harvey, 1999; Jetten, Haslam, Cruwys, & Branscombe, 2018). However, it is also the case that individuals need to experience a sense of meaningful connection to the group in order to reap the benefits of that membership: that is, they need to *identify* with it (Jetten et al., 2014). Social identification has been defined as the extent to which a given group is valued and self-involving, such that individuals consider group membership to be an important part of their self-definition (e.g., Doosje & Ellemers, 1997; Doosje, Ellemers, & Spears, 1995; Turner, 1999). When someone identifies strongly with a given group, he or she will be more likely to interpret reality and behave in a manner consistent with that group's values, ideology, and norms (Turner, 1991). And as such, identification determines the nature of people's social behavior (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987; Turner & Oakes, 1997) and their involvement in group efforts (Ellemers, de Gilder, & Haslam, 2004; Ellemers, Kortekaas, & Ouwerkerk, 1999). Hence, social identities that provide positive meaning and worth are particularly beneficial (Haslam et al., in press). Thus, it is identification with a social group, rather than group membership per se, that benefits mental well-being (Cruwys et al., 2014; Miller, Wakefield, & Sani, 2015; Sani, Herrera, Wakefield, Boroch, & Gulyas, 2012).

In a similar way, research into substance use has shown that social identification with a nonaddiction identity is linked with a reduction

in behaviors such as drug and alcohol use (Bathish et al., 2017; Best et al., 2016; Dingle, Stark, Cruwys, & Best, 2015). The literature examining the content and evaluation of particular identities offers useful insights (Dingle, Stark, et al., 2015; Haslam et al., 2019). For instance, Dingle and colleagues suggest that a shift in identity over time, toward a positive nonsubstance abuse identity, is a crucial step in recovery from addiction. In the same way that defining oneself as a "drinker" or "junkie" has negative implications for substance behavior (Schofield, Pattison, Hill, & Borland, 2001). Consequently, we argue that defining oneself as a "mindful champion" (i.e., someone who uses mindfulness to lead their life and inspire others to do the same) could have positive implications for well-being and would lead to a reduction of substance use. Indeed, a previous study showed that, in a prison context, the mindful leader identity provided group members with a positive sense of belongingness as well as a set of values and norms that promote healthy behaviors and a reduction in substance use (Thompson, 2018).

4 | MINDFULNESS

Mindfulness is defined as an "awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally, to the unfolding of experience moment by moment" (Kabat-Zinn, 2003, p. 145). The skill of mindfulness refers to the ability to willfully focus the attention on the phenomena occurring internally and externally at the present moment, while maintaining a nonjudgmental and curious posture toward those perceived experiences (Baer, 2003). Tang, Hoelzel, and Posner (2015) suggest that mindfulness mediation exerts its effects by enhancing self-regulation, including attention control, emotion regulation, and self-awareness, with measurable changes in relevant brain regions. More specifically, they suggest that mindfulness practice affects self-referential processing and present-moment awareness. As a result, mindfulness can improve mental well-being by reducing stress and regulating negative emotional states. Better stress and emotion regulation is a key aspect of resilience. Similarly, better self-regulation capacity may help reduce problematic substance use by increasing alternative emotional and behavioral coping mechanisms during stressful events.

Mindfulness research has grown exponentially (Van Dam et al., 2018) and the benefits of mindfulness are well documented (Cavanagh, Strauss, Forder, & Jones, 2014; Gu, Strauss, Bond, & Cavanagh, 2015; Spijkerman, Pots, & Bohlmeijer, 2016). Dispositional/trait mindfulness has been shown to be negatively correlated with depression (Way, Creswell, Eisenberger, & Lieberman, 2010) and general psychological symptoms (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006), while it is positively correlated with higher levels of life satisfaction (Brown & Ryan, 2003) and well-being (Keng, Smoski, & Robins, 2011).

In prison contexts, participation in a Mindfulness-Based Stress Reduction (MBSR) course has been found to have positive well-being benefits for inmates (Samuelson, College, Carmody, Kabat-Zinn, & Bratt, 2007), and a recent meta-analysis showed that mindfulness and meditation can bring positive well-being benefits to prisoners (Auty, Cope, & Liebling, 2017). Mindfulness is also associated with improved resilience (Chamberlain et al., 2016; Nila et al., 2016). Bajaj and Pande (2016) concluded that mindfulness promotes emotional balance and may assist in faster recovery from challenges. They argue that higher levels of mindfulness mean people can foster resilience as they are more likely to respond skillfully to difficulties instead of reacting automatically in nonadaptive ways.

Mindfulness interventions are also recognized to help in recovery from substance abuse (Khanna & Greeson, 2013). Mindfulness-based relapse prevention (MBRP) has been specifically designed for that purpose (Witkiewitz et al., 2014). Research has been conducted within a prison context demonstrating that mindfulness and meditation can help reduce substance abuse among inmates (e.g., Bowen et al., 2006; Lyons & Cantrell, 2016). There is extensive research investigating the mechanisms by which mindfulness practice helps reduce substance abuse (Bowen, Witkiewitz, Dillworth, & Marlatt, 2007; Erskine, Georgiou, & Kvavilashvili, 2010; Garland, Boettiger, Gaylord, Chanon, & Howard, 2012; Garland, Carter, Ropes, & Howard, 2012; Garland, Froeliger, & Howard, 2014; Heatherton & Wagner, 2011; Hölzel et al., 2011; Wegner & Zanakos, 1994; Witkiewitz et al., 2014). It is argued that mindfulness techniques help individuals with substance use problems because they increase people's awareness of their habits as well as their emotional states. This awareness is in turn linked to managing craving and relapse (Chiesa & Serretti, 2014).

Mindfulness research mostly focuses on mindfulness interventions on individuals. However, many mindfulness programs are delivered in group settings (e.g., MBSR, MBRP). We are interested in exploring what happens when mindfulness recipients see themselves in terms of a shared social identity—*as members of* the mindfulness group.

5 | RATIONALE OF STUDIES

This brief review has established that social identification and mindfulness are both positively related to well-being. However, research has yet to consider the contributory utility of these two constructs when examined together in the same context. This is important because mindfulness training is often delivered in group settings (e.g., Imel, Baldwin, Bonus, & MacCoon's, 2008), although the role of the group gets overlooked. To the extent that the group processes emerging in such settings underpin development of a shared social identity among training recipients (i.e., as members of a "mindfulness group": see Tarrant, Haslam, Carter, Calitri, & Haslam, 2020), it is possible that the positive health and well-being outcomes of mindfulness training may be—at least in part—be attributable to that social identity. The current research tested this suggestion.

6 | THE PRESENT STUDIES

Our studies investigated the contributory potential of both mindfulness and social identification in a context where stressors are multiple and chronic: the largest male maximum security prison in Kenya. The prison has around 3,000 inmates. The jail is overcrowded, inmates lack access to basic food (e.g., milk and bread) and hygiene products (e.g., soap), and there are high levels of violence and aggression (Adarves-Yorno & Mahdon, 2017; Adarves-Yorno,

Mahdon, Lee, & Haslam, 2019). This is a highly stressful environment where group relations matter (e.g., Kellezi, Bowe, Wakefield, McNamara, & Bosworth, 2018b) but remain understudied. Wider evidence demonstrates that prison populations around the world suffer from substantial psychological disorders, together with high comorbidity of mental illness and substance misuse (Penal Reform International, 2018). A recent meta-analysis showed that mindfulness interventions in prison contexts have small to moderate effects on well-being (Auty et al., 2017). Improving well-being not only helps inmates cope with the challenges of prison life, but could also aid positive engagement with rehabilitation activities. In our research project, inmates took part in a "Mindful leaders" training. The program had two core elements: mindfulness training and the inductive creation of a "mindful leader" identity (see Mahdon et al., 2017, for details on the training methods and content). In this context, a "mindful leader/champion" is someone who leads his life mindfully and inspires others to do the same. Inmates kept their mindful leader identity salient by inspiring and training other inmates. Here, we examine the impact of the identification with the group of "mindful leader" rather than evaluate the training itself. The concept of mindfulness was completely new to participants. Training was initially provided by a mindfulness trainer over 2 days (14 hr in total). From that training, an 8 weeks training program (minimum of 24 hr) was cocreated with mindful leaders and delivered by mindful leaders themselves (inmates), and supervised by the initial trainer. Mindfulness became common practice among those trained and those who were residing with the trainees.

The studies in this paper aim to examine the combined and differential effects of dispositional mindfulness and identification with a mindful identity on mental well-being and resilience (Study 1 & 2) and reduction of substance use (Study 2). Both studies received ethical clearance from the [blinded for review] Ethics Committee.

6.1 | Hypothesis

We predict that social identification with a mindfulness group will be positively related to mental well-being (H1a) and resilience (H1b), and negatively related to substance use (H1c).

We predict that mindfulness will be positively related to mental well-being (H2a) and resilience (H2b), and negatively related to substance use (H2c).

We hypothesize that social identity related to mindfulness would add further explanation of the variance in mental well-being (H3a), resilience (H3b), and substance abuse (H3c) than mindfulness alone.

7 | STUDY 1

7.1 | Sample and procedure

To test our hypotheses, data were collected from the largest maximum security prison in Kenya. Our opportunity sample was composed of all participants from the Mindful Leaders program, which started a year before. This sample was composed of initial participants selected by the Prison Governor, and trained by the founder of the program, together with the first group of mindful leaders' trainees that inmates recruited themselves. Participants were invited to complete a paper-and-pencil questionnaire at the start of a mindfulness session they had with the founder of the program. The prison program coordinator noted that participants have completed at least two-thirds of their formal training. All surveys were distributed in English as participants were fluent in this language. A total of $N = 82$ male participants completed the questionnaire—according to G*Power (Faul, Erdfelder, Buchner, & Lang, 2009), this gave us enough power to detect a medium-sized effect ($f^2 = .10$/partial $R^2 = .09$, for $1-\beta = .80$, $\alpha = .05$). Participants were all aged between 21 and 71 with a mean age of 40 years. Their prison sentences ranged from 10 years to life or condemned to death and they had spent between 2 months and 27 years in prison ($M = 7.59$ years, $SD = 6.22$). Their participation in the research was completely voluntary. No individually identifying data were collected. A member of our research team administered the questionnaire. Participants were made aware that their participation in the research would have no effect on their sentence or conditions in prison.

7.2 | Measures

The response scales for all the measures used was a Likert-scale of 1–7, where 7 represented a high score on that construct. The measures appeared in the questionnaire in the order presented below.

7.2.1 | Mindfulness

A 24-item short version of the Five Facet Mindfulness Questionnaire (Bohlmeijer, ten Klooster, Fledderus, Veehof, & Baer, 2011 adapted from the original version by Baer et al., 2006) was used. The items in the scale group into five facets which were: Acting with awareness, Describing, Non-reacting, Non-judging, Observing. Example items include "I pay attention to sounds" and "I notice smells," both these are from the "observing" facet. Items were presented in a mixed order in the questionnaire and not within facet groups. Reliability analysis revealed that items from the "non-judging" facet should be removed. Probably that low reliability is because non-judging could be perceived as oxymoron to remorse and some inmates have committed crimes that require repentance. The final scale was composed of a total of 21 items. Internal consistency of the scale was acceptable with Cronbach's $\alpha = .70$.

7.2.2 | Mental well-being

The Short Warwick Edinburgh Mental Well-being Scale consisting of seven items was used (Stewart-Brown, Tennant, Tennant, Platt, Parkinson, Weich, 2009). Example items included whether participants feel "optimistic about the future." Internal consistency of the scale was good, with Cronbach's $\alpha = .85$.

7.2.3 | Resilience

The short version of the Connor–Davidson Resilience scale, containing 10 items, was used (Campbell-Sills, Forde, & Stein, 2009; Connor & Davidson, 2003). Example items included whether they see themselves as able to "deal with whatever comes" (for copyright reasons we can only include paraphrased examples). Internal consistency of the scale was good, with Cronbach's $\alpha = .80$.

7.2.4 | Social identification

A six-item scale to measure social identification with a group was used. Selected items from Ellemers et al. (1999) social identification scale were used. Items were adjusted to include the relevant group "Mindful Leadership (ML) group." Items were as follows: "Being a member of the Mindful Leadership group is important to me"; "I identify with other members of the ML group"; "I am like other members of the ML group"; "The ML group is a reflection of who I am"; "I would like to continue working with the ML group"; "I feel good about the ML group." Internal consistency of the scale is good, with Cronbach's $\alpha = .80$.

7.3 | Results

To test the relationship between social identification and the two outcome variables, correlational analyses were conducted. In line with Hypotheses H1a and H1b, social identification was significantly positively correlated with both mental well-being ($r(75) = .41$, $p < .001$) and resilience ($r(77) = .33$, $p = .003$). See Table 1 for full correlation matrix.

Equally, to test the relationship between mindfulness and the two outcome variables, correlational analyses were conducted. In line with Hypotheses H2a and H2b, mindfulness was significantly positively correlated with both mental well-being ($r(75) = .38$, $p = .001$) and resilience ($r(77) = .36$, $p = .001$).

In order to test whether social identification predicted mental well-being (H3a) and resilience (H3b) in addition to variance explained by mindfulness alone, we conducted a hierarchical linear regression. The two predictors, mindfulness and social identification, were not significantly correlated ($r(77) = .16$, $p = .153$), indicating that multicollinearity would not pose an issue. The regression results supported Hypothesis 3a that social identification is a significant predictor ($\beta = .36$, $p = .001$) of mental well-being after accounting for the relationship with mindfulness ($\beta = .33$, $p = .002$). Both factors together accounted for 25% of the variance in mental well-being, with social identification accounting for 13% of variance in addition to mindfulness ($\Delta F(1, 74) = 12.76$, $p = .001$).[1] See Table 2.

[1]When the length of time in prison and length of sentence were controlled for, results did not significantly change (Study 1).

TABLE 1 Correlations amongst all variables (Study 1)

Variable	1	2	3	4	*M*	*SD*
1. Mindfulness	–	.38**	.36**	.16	4.79	0.68
2. Mental well-being		–	.57**	.41**	4.90	1.27
3. Resilience			–	.33**	5.30	0.93
4. Social identification				–	6.38	0.80

**$p < .01$.

TABLE 2 Regression analysis of mindfulness and social identification on mental well-being (Study 1)

	b	*SE b*	*β*
Step 1			
Constant	1.52	1.00	
Mindfulness	0.71	0.20	0.38**
Step 2			
Constant	−1.57	1.24	
Mindfulness	0.60	0.19	0.33**
Social identification	0.57	0.16	0.36**

Note: $R^2 = .15$ for Step 1: $\Delta R^2 = .13$ for Step 2 ($p < .001$).
**$p < .01$,

TABLE 3 Regression analysis of mindfulness and social identification on resilience (Study 1)

	b	*SE b*	*β*
Step 1			
Constant	2.98	0.70	
Mindfulness	0.48	0.14	0.36**
Step 2			
Constant	1.17	0.94	
Mindfulness	0.42	0.14	0.31**
Social identification	0.33	0.12	0.28**

Note: $R^2 = .13$ for Step 1: $\Delta R^2 = .08$ for Step 2 ($p = .008$).
**$p < .01$,

Similarly, results revealed that social identification is a significant factor ($\beta = .28$, $p = .004$) in predicting resilience after accounting for the effect of mindfulness ($\beta = .31$, $p = .008$), supporting Hypothesis 3b. Both factors accounted for 21% of the variance, with social identification accounting for 8% in addition to mindfulness ($\Delta F(1, 76) = 7.54$, $p = .008$).[1] See Table 3.

7.4 | Study 1 discussion

Results of Study 1 supported our hypotheses: both social identification with a mindful identity and individual mindfulness predicted mental well-being and resilience, respectively. More importantly, when analyzed together, social identification and mindfulness were able to explain more variance than mindfulness alone. Thus, mental well-being and resilience were improved by combining the positive

effects of social identification and dispositional mindfulness. To our knowledge this was the first study to explore social identification with a mindful identity and the dispositional mindfulness together. As such Study 2 aimed to replicate these findings. In addition, Study 2 aimed to address two potential shortcomings of this study. First, the mindfulness scale was relatively long and the reliability could have been higher. Second, the social identification measure should use a full scale instead of a subset from a longer scale.

8 | STUDY 2

The design and rationale of this study was almost identical to that of Study 1. However, we made three improvements. First, it includes a related but different mindfulness scale as an attempt to improve its reliability. Second, instead of using a shorter version of a long social identification scale (Ellemers et al., 1999), it used the whole scale of one of the most widely used measures in social identification research (Doosje et al., 1995). In addition to well-being and resilience, we examined a reduction in self-reported alcohol and substance use. The intervention our sample participated on had no components on drugs and alcohol. Due to the clandestine use of drugs and alcohol, self-report was the only option to measure substance use in this research.

8.1 | Sample and procedure

As in Study 1, we invited all inmates who were enrolled in the mindful leaders program to participate in the research. In contrast to the Study 1 sample, inmates participating in Study 2 were only trained by other inmates. Importantly, this sample did not include any of the participants in Study 1. The recruitment strategy for the training was varied and informal. Mindful leader recruited trainees from different sectors and cells in the institution. As before, participation in the course and the research was entirely voluntary with no impact on sentence or prison conditions. The inmates were from the same maximum security prison in Kenya. Participants completed the questionnaire at the start of a session with the founder of the program. According to the prison mindfulness training coordinator, most of the participants had completed two-thirds of the program. Based on findings from Study 1, we aimed for a final sample size of at least $N = 95$, based on calculations with G*Power, with $1-\beta = .80$, $\alpha = .05$, partial $R^2 = .08$. A total of $N = 145$ inmates took part in the study; nine were removed as outliers as the responses did not vary across the questionnaire—we interpreted this pattern of response as no engagement or understanding; a further 13 participants were removed to avoid duplicate individuals from Study 1. A total of $N = 123$ participants remained whose ages ranged from 20 to 79, $M = 40$ years. Their sentences ranged from 9 years to life, or death sentences, and they had been in prison from between one and 25 years ($M = 9.34$ years, $SD = 5.60$).

8.2 | Measures

The response scales for all the measures used was a Likert-scale of 1–7, where 7 represented a high score on that construct. Items in the questionnaire were presented in the order discussed below.

8.2.1 | Mindfulness

The items on mindfulness were reduced to 19 in line with a subsequently shorter published version of the five facet questionnaire (Haddock, Foad, Windsor-Shellard, Dummel, & Adarves-Yorno, 2017). Twelve items were identical to the 24-item scale used in Study 1 and the other six were of a similar nature. Reliability analysis of the mindfulness scale again indicated that the non-judging items should be removed, 16 items remained. Internal consistency of the scale is acceptable with Cronbach's alpha $\alpha = .77$.

8.2.2 | Social identification

A five-item scale was used, with four items from an extensively used social identification scale (Doosje et al., 1995). Example item: "I feel strong ties to the Mindful Leaders group." In addition, one item from the Study 1 scale ("Being a mindful leader/trainee is an important part of who I am") was also included. All items were worded so that the identity referred to "mindful leader/trainee group." Reliability analysis revealed an acceptable internal consistency, with Cronbach's $\alpha = .79$.

8.2.3 | Resilience and mental well-being

The same scales were used as in Study 1 for resilience––with a good internal consistency, with Cronbach's $\alpha = .82$, $M = 5.68$, $SD = 0.95$—and mental well-being—also with a good internal consistency, with Cronbach's $\alpha = .82$.

8.2.4 | Reduction in alcohol and drug consumption

We also measured self-reported reduction in alcohol consumption and drug use since the beginning of the mindfulness program on a 1–7 Likert-scale from "not at all reduced" (1) to "very much reduced" (7). Note that the question also had a "not applicable" response category as not all inmates may have been involved in such activities before the program. The items were: "The amount of alcohol I was consuming has been reduced" and "The amount of drugs I was consuming has been reduced" compared to before the training. A total of $N = 97$ participants provided valid responses to both questions. The two items correlated positively and significantly, with $r(95) = .76$, $p < .001$, and were therefore, combined to form one scale

TABLE 4 Correlations amongst all variables (Study 2)

Variable	1	2	3	4	5	*M*	*SD*
1. Mindfulness	–	.53**	.39**	.25*	.35**	4.96	0.85
2. Mental well-being		–	.66**	.26*	.54**	5.72	1.10
3. Resilience			–	.31**	.51**	5.68	0.95
4. Reduction in substance use				–	.45**	6.08	1.47
5. Social identification					–	6.33	0.90

*$p < .05$, **$p < .01$ (two-tailed).

of reduction in substance use, with a higher score indicating a larger reduction in use. Reliability analysis revealed a Cronbach's $\alpha = .86$.

8.3 | Results

Regarding Hypothesis 1, results replicated those of Study 1: Social identification was significantly correlated with both mental well-being ($r(119) = .54$, $p < .001$) and resilience ($r(119) = .51$, $p < .001$) supporting H1a and H1b. In addition, social identification was positively correlated with reduced substance use ($r(95) = .45$ $p < .001$), supporting H1c.

Similarly, results of Study 2 replicated those of Study 1 with regards to Hypothesis 2a and 2b: Mindfulness was significantly correlated with mental well-being ($r(119) = .53$, $p < .001$) and resilience ($r(119) = .39$, $p < .001$). In addition, mindfulness was positively correlated with reduced substance use ($r(94) = .25$, $p = .014$), supporting H2c. See Table 4 for a full correlation matrix.

To test Hypotheses 3a–c, we again conducted hierarchical linear regression analyses. The two predictors, mindfulness and social identification, were only moderately correlated ($r(118) = .35$, $p < .001$), so that multicollinearity was not posing a problem. For Hypotheses 3a and 3b, results were in line with findings from Study 1: Social identification ($\beta = .40$, $p < .001$) accounted for variance in mental well-being in addition to that accounted for by mindfulness ($\beta = .40$, $p < .001$, $\Delta F(1, 117) = 28.38$, $p < .001$). Together, the two variables accounted for 42% of the variance, with social identification accounting for an additional 14% compared to mindfulness alone (see Table 5). Similarly, social identification ($\beta = .43$, $p < .001$) predicted resilience in addition to that predicted by mindfulness ($\beta = .23$, $p = .006$, $\Delta F(1, 117) = 27.81$, $p < .001$).[2] Together they accounted for 30% of the variance, with social identification accounting for an additional 16% of the variance (see Table 6).

With regard to Hypothesis 3c, we found that, on its own, mindfulness was a significant predictor of reduced substance use ($\beta = .25$, $p = .014$). However, when social identification ($\beta = .41$, $p < .001$) was taken into account, mindfulness was no longer a significant predictor ($\beta = .10$, $p = .31$). Together the factors accounted for 19% of the variance in reduced substance use, with social identification accounting for 15% of variance alone ($\Delta F(1, 93) = 12.32$, $p < .001$[2], see Table 7).

[2]When the length of time in prison and length of sentence were controlled for, results did not significantly change (Study 2).

TABLE 5 Regression analysis of mindfulness and social identification on mental well-being (Study 2)

	B	*SE b*	*β*
Step 1			
Constant	2.20	0.52	
Mindfulness	0.71	0.10	0.54***
Step 2			
Constant	−0.01	0.62	
Mindfulness	0.53	0.10	0.40***
Social identification	0.49	0.09	0.40***

Note: $R^2 = .28$ for Step 1: $\Delta R^2 = .14$ for Step 2 ($p < .001$).
***$p \leq .001$.

TABLE 6 Regression analysis of mindfulness and social identification on resilience (Study 2)

	b	*SE b*	*B*
Step 1			
Constant	3.58	0.48	
Mindfulness	0.43	0.10	.38***
Step 2			
Constant	1.54	0.58	
Mindfulness	0.26	0.09	.23**
Social identification	0.45	0.09	.43***

Note: $R^2 = .14$ for Step 1: $\Delta R^2 = .16$ for Step 2 ($p < .001$).
**$p < .01$, ***$p \leq .001$.

8.4 | Study 2 discussion

The results of Study 2 replicated those of Study 1 and supported the hypotheses that social identification and mindfulness are positively associated with mental well-being and resilience. In addition, social identification accounted for additional variance in mental well-being and resilience over and above that accounted for by mindfulness. Extending the work from Study 1, Study 2 revealed that in relation to substance use, both social identification with the mindful group and dispositional mindfulness individually explained significant amounts of variance in the reduction of substance use compared to before the training. However, when analyzed together, the effect of mindfulness was reduced

TABLE 7 Regression analysis of mindfulness and social identification on reduced substance use (Study 2)

	B	*SE b*	*β*
Step 1			
Constant	3.94	0.87	
Mindfulness	0.43	0.17	.25*
Step 2			
Constant	0.80	1.10	
Mindfulness	0.17	0.17	.10
Social identification	0.70	0.17	.41***

Note: $R^2 = .05$ for Step 1: $\Delta R^2 = .19$ for Step 2 ($p < .001$).
*$p < .05$, ***$p \leq .001$.

substantially, whereas social identification remained as a significant predictor.

9 | GENERAL DISCUSSION

The current research aimed to investigate the combined and differential effects of social identification and mindfulness on well-being. In particular, the research examined the role of social identification with a mindfulness group in a context characterized by multiple and prevalent stressors: a maximum security prison in Kenya. Consistent with the predictions, we found that both identification with a mindfulness group and dispositional mindfulness were positively correlated with mental well-being and resilience. These findings were consistent across two studies. Further, our findings indicated that, when predicting mental well-being and resilience, social identification accounted for variance in addition to variance accounted for by mindfulness alone. In the case of substance use, results showed that both mindfulness and social identification were correlated with a reduction in consumption. However, when combined, identification with a mindfulness group provided all the explanatory power. That is, identification with a mindful identity was a stronger predictor of reduction of substance use. The theoretical and practical implications of these findings are discussed below.

9.1 | Theoretical implications

Our results have several theoretical implications. First, our research contributes to the emergent body of work on mindfulness in high-stress contexts such as prisons. Previous research has identified that mindfulness can improve two key psychological well-being outcomes, that of mental well-being (Brown & Ryan, 2003; Carmody & Baer, 2008) and resilience (Nila et al., 2016; Pidgeon & Keye, 2014). However, most of the research on mindfulness has been conducted in clinical populations (e.g., Kuyken et al., 2016), and research conducted in prisons has mostly focused on exploring the impact of meditation-based mindfulness interventions (for a review, see Auty et al., 2017). Our findings are in line with previous research, which has found positive links between dispositional mindfulness, mental well-being, and resilience in low-stress environments (e.g., Gu et al., 2015). Second, we contribute to the social identity approach to health by providing evidence that mindfulness groups can provide a positive social identity in a real prison population. Previous research has been conducted in a simulated prison environment (Haslam & Reicher, 2006) and with detainees who were not incarcerated (Kellezi, Bowe, Wakefield, McNamara, & Bosworth, 2018a). Third, our research suggests that combining individual mindfulness with identification with a mindful group provides significant benefits for well-being above the benefits of mindfulness alone.

The positive impact of social identification on well-being measures has been explained in the "social cure" literature by group belongingness (Jetten et al., 2012). Social groups are a psychological resource, which individuals can draw on, and which have been shown to enhance psychological well-being and resilience (Haslam, Jetten, Cruwys, Dingle, & Haslam, 2018). Yet, the psychological resource is not group membership per se. Jetten and colleagues (2014) argue that a social group can only help mitigate the impact of negative stressors when these groups are important and meaningful for us and form part of our sense of self. Furthermore, Haslam and colleagues (2018) propose that it is the meaning of the identity that holds the power. In our studies, the content of what it means to be a mindful leader/trainee was closely linked with mindfulness itself. Thus, for the inmates, the creation of a new identity that centered on being a mindful leader/trainee was potentially the key to its effect on well-being (see Thompson, 2018). Importantly, when behavior becomes infused with what an identity means, engaging in that behavior allows people to demonstrate their identity and affirm their membership of the group (Smith, Louis, & Tarrant, 2017). For our participants, it is possible that reducing substance use was aligned with the identity of a mindful leader/trainee, and therefore, an expression of a valued identity. In line with this, Klein, Spears, and Reicher (2007) emphasize the importance of identity expression for an identity to be maintained and lived. Similarly, Gallagher, Muldoon, and Pettigrew (2015) discuss affiliative social identification where embodying norms and behaviors allows members to demonstrate that they meet group expectations. In contrast, consuming drugs and alcohol is misaligned with what it means to be a mindful leader in that prison (Thompson, 2018). Thus, the mere consumption of substances among inmates could threaten the expression of a mindful identity.

9.2 | Practical implications

Our research suggests that social identity established within the context of group-based mindfulness programs may be important for well-being. Mindfulness training has increased in popularity in recent years, including in prison settings. And although many training programs and health interventions are delivered in group settings (see Tarrant et al., 2020), they are approached as individual training

sessions conducted in groups. This approach misses the potentially valuable opportunity of harnessing the benefits of social group membership—and associated social identity—that can be aligned with mindfulness programs. Indeed our findings provide support to Imel et al. (2008) idea that while mindfulness practice is an individual endeavor, the training of it in a group has the potential to offer something beyond that of simple delivery of intervention content (i.e., specific mindfulness techniques). In fact, research shows that in some cases it might be the group setting rather than the intervention itself that yields benefits for well-being (Gleibs, Haslam, Haslam, & Jones, 2011).

The importance of considering social identity processes in interventions is also reflected in our findings where a mindful disposition failed to account for self-reported reduction in substance use when participants' social identity was accounted for. This suggests that the well-being benefits of mindfulness training could potentially be increased by attending to social identity processes when this training is delivered in group settings. The importance of this potential is especially marked in prison contexts when there are few opportunities for development of other positive and meaningful (and health-promoting) social identities.

In the current research, participants reported identifying with a mindful leader group (in the sense of being "champions" of mindfulness). This has a proactive element that may make this identity particularly beneficial. Both "leader" and "champion" portray individuals in a positively distinct way. For instance, the leader/champion aspect of the identity may have conferred a sense of importance and empowerment to the participants, thereby increasing self-esteem and confidence beyond the effects of a mindfulness group membership. It is important to acknowledge that proactive identities whereby individuals become leaders/champions may lead to more benefits than the association with a group per se. In this sense, a "mindful prisoner group" may not be as beneficial as a "mindful leader group." Future research is needed to better understand the effects that such identity labels have on psychological outcomes.

9.3 | Limitations and future directions

Conducting this research program in a prison environment in Kenya brought with it many practical and cultural challenges that affected the way we were able to conduct our research. A longitudinal study was not possible, and given the cross-sectional nature of our studies we cannot claim causality. Furthermore, the voluntary nature of the program and the study meant that participants may have self-selected toward the study. This means that it is currently unclear whether a wider intervention in prison contexts would be similarly successful. However, mindfulness programs—and particularly the continued practice of mindfulness—rely on an element of voluntariness and self-motivation. We also did not assess the length of time that each participant had taken part in the mindfulness program, and could therefore, not control for length of training effects. In addition, the data were derived from self-reported measures only, which may underestimate real substance use (e.g., Johnson & Fendrich, 2005). Another limitation refers to the mindfulness measure, the "non-judging" subscale had very low internal reliability and had to be removed from the scale. As discussed previously, this low reliability may be due to the type of sample used (condemned prisoners). Future studies with different samples should use the full mindfulness scale.

Our research was conducted in a highly stressful context. In order to determine whether our findings and practical implications extend to other more "everyday" situations, future research could explore whether our findings hold true in less stressful contexts, for example, the delivery of mindfulness trainings within organizations or in traditional MBSR courses.

The correlational design of the current research means that there is some way to go to understanding the mechanisms by which mindfulness interventions and group identities can be used to enhance well-being in high-stress environments, particularly in relation to recovery from substance abuse (Dingle, Cruwys, & Frings, 2015). Future research needs to look at the mechanism by which a mindfulness identity impacts well-being outcomes. From our perspective, there are three potential routes: First, a mindfulness identity may increase the motivation to practice mindfulness as an expression of a positive identity, and thereby increase well-being. Second, a mindfulness identity may create norms that discourage substance abuse and encourage recovery behavior. Third, a positive mindfulness identity may reduce the negative effects of compromised identities within a prison environment, thereby enhancing well-being. In our data, there is no support for the first explanation, that is, we did not find any indication that mindfulness might mediate the impact of a mindful identity on outcomes. However, it needs to be noted here that we assessed dispositional mindfulness rather than the practice of mindfulness or state mindfulness. Future research is needed to examine this potential pathway with appropriate measures. The second pathway draws on social identity models by Frings and Albery (2015; Social Identity Model of Cessation Maintenance [SIMCM]) and by Best and colleagues (2016; Social Identity Model of Recovery, SIMR). Based on the social identity approach, both models suggest that identification with social groups can aid recovery. SIMCM lays out the socio-cognitive changes that can result from structured group interventions (e.g., self-help or therapy groups), which are thought to underpin the maintenance of substance use cessation. In addition, SIMR points out the role that the wider social network, including informal groups and friendships, can play in recovery from substance abuse. Importantly, both models emphasize the key role of norms that discourage substance use and aide recovery and well-being, and see the creation of new, "positive" identities as the best way to create and internalize such normative behavior. Along similar lines, the development of a social identity as a mindful "champion" may have signaled for our participants a normative sense of responsibility and visibility, as distinct from identifying only as a prisoner (which likely conveys different, possibly maladaptive social norms). Future research is needed to better understand what mindfulness identity, in each context, can serve as a particularly fruitful pathway to enhancing well-being.

The third pathway reflects concerns raised in the literature about identities that may act as a "social curse" rather than a "social cure" (e.g., Kellezi & Reicher, 2012). Stigmatized identities and those of low-status groups have been found to undermine self-esteem and mental health (Crabtree, Haslam, Postmes, & Haslam, 2010; Kellezi et al., 2018b). The prison system is likely to disrupt positive social group memberships that prisoners may have had before their incarceration, and enforces a highly stigmatized identity as "prisoner." Kellezi and colleagues (2018b) studied participants in a detention center and found that social identities in that context added to feelings of distress and isolation. Importantly, a shared identity with fellow prisoners does not automatically lead to negative well-being and indeed can mitigate against such negative impacts. For instance, Haslam and Reicher (2006) conducted an experiment in a simulated prison environment and found that prisoners developed a sense of social identity and solidarity that was related to a reduction in stress and better coping. Future research is needed to examine the different processes by which a mindful identity increases well-being and reduces substance use.

10 | CONCLUSION

In this paper, we have provided an examination of the combined and differential effects of mindfulness and identification with a mindfulness group on well-being. Both mindfulness and social identification were found to be positively related to, as well as significant predictors of, well-being outcomes: mental well-being and resilience. The paper also looked at reduction of substance use. Results showed that identification with a mindfulness group did not only account for additional variance in the reduction of substance use, but also reduced the variance that mindfulness explained. This paper shows how both individual mindfulness and identification with a mindfulness group can be usefully combined to create better well-being, resilience, and lower substance use in a high-stress environment. Our findings contribute to the understanding of how well-being, resilience, and lower substance use in a high-stress environment may be enhanced through mindfulness programs.

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REFERENCES

Adarves-Yorno, I., & Mahdon, M. (2017). How mindfulness is helping Kenyan prisoners achieve inner freedom. *The Conversation*. Retrieved from https://theconversation.com/how-mindfulness-is-helping-kenyan-prisoners-achieve-inner-freedom-77892

Adarves-Yorno, I., Mahdon, M., Lee, A., & Haslam, S. A. (2019). *Towards a social identity model of engaged I: Using a mindfulness intervention as an illustrative impact case*. Manuscript submitted for publication.

Auty, K. M., Cope, A., & Liebling, A. (2017). A systematic review and meta-analysis of yoga and mindfulness meditation in prison: Effects on psychological well-being and behavioural functioning. *International Journal of Offender Therapy and Comparative Criminology*, *61*(6), 689–710. https://doi.org/10.1177/0306624X15602514

Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice*, *10*, 125–143. https://doi.org/10.1093/clipsy.bpg015

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, *13*(1), 27–45. https://doi.org/10.1177/1073191105283504

Bajaj, B., & Pande, N. (2016). Mediating role of resilience in the impact of mindfulness on life satisfaction and affect as indices of subjective well-being. *Personality and Individual Differences*, *93*, 63–67. https://doi.org/10.1016/j.paid.2015.09.005

Bathish, R., Best, D., Savic, M., Beckwith, M., Mackenzie, J., & Lubman, D. I. (2017). "Is it me or should my friends take the credit?" The role of social networks and social identity in recovery from addiction. *Journal of Applied Social Psychology*, *47*(1), 35–46. https://doi.org/10.1111/jasp.12420

Best, D., Beckwith, M., Haslam, C., Haslam, S. A., Jetten, J., Mawson, E., & Lubman, D. I. (2016). Overcoming alcohol and other drug addiction as a process of social identity transition: The social identity model of recovery (SIMOR). *Addiction Research & Theory*, *24*, 111–123. https://doi.org/10.3109/16066359.2015.1075980

Bohlmeijer, E., ten Klooster, P. M., Fledderus, M., Veehof, M., & Baer, R. (2011). Psychometric properties of the five facet mindfulness questionnaire in depressed adults and development of a short form. *Assessment*, *18*(3), 308–320. https://doi.org/10.1177/1073191111408231

Bowen, S., Witkiewitz, K., Dillworth, T. M., Chawla, N., Simpson, T. L., Ostafin, B. D., … Marlatt, G. A. (2006). Mindfulness meditation and substance use in an incarcerated population. *Psychological Addiction Behaviour*, *20*(3), 343–347. https://doi.org/10.1037/0893-164X.20.3.343

Bowen, S., Witkiewitz, K., Dillworth, T. M., & Marlatt, G. A. (2007). The role of thought suppression in the relationship between mindfulness meditation and alcohol use. *Adaptive Behavior*, *32*(10), 2324–2328. https://doi.org/10.1016/j.addbeh.2007.01.025

Branscombe, N. R., Schmitt, M. T., & Harvey, R. D. (1999). Perceiving pervasive discrimination among African Americans: Implications for group identification and well-being. *Journal of Personality and Social Psychology*, *77*, 135–149. https://doi.org/10.1037/0022-3514.77.1.135

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, *84*(4), 822–848. https://doi.org/10.1037/0022-3514.84.4.822

Campbell-Sills, L., Forde, D. R., & Stein, M. B. (2009). Demographic and childhood environmental predictors of resilience in a community sample. *Journal of Psychiatric Research*, *43*, 1007–1012. https://doi.org/10.1016/j.jpsychires.2009.01.013

Carmody, J., & Baer, R. A. (2008). Relationships between mindfulness practice and levels of mindfulness, medical and psychological symptoms and well-being in a mindfulness-based stress reduction program. *Journal of Behavioral Medicine*, *31*(1), 23–33. https://doi.org/10.1007/s10865-007-9130-7

Cavanagh, K., Strauss, C., Forder, L., & Jones, F. (2014). Can mindfulness and acceptance be learnt by self-help? A systematic review and meta-analysis of mindfulness and acceptance-based self-help interventions. *Clinical Psychology Review*, *34*(2), 118–129. https://doi.org/10.1016/j.cpr.2014.01.001

Chamberlain, D., Williams, A., Stanley, D., Mellor, P., Cross, W., & Siefloff, L. (2016). Dispositional mindfulness and employment status as predictors of resilience in third year nursing students: A quantitative study. *Nursing Open*, *3*(4), 212–221. https://doi.org/10.1002/nop2.56

Chiesa, A., & Serretti, A. (2014). Are mindfulness-based interventions effective for substance use disorders? A systematic review of the evidence. *Substance Use and Misuse*, *49*, 492–512. https://doi.org/10.3109/10826084.2013.770027

Christopher, M. S., Goerling, R. J., Rogers, B. S., Hunsinger, M., Baron, G., Bergman, A. L., & Zava, D. T. (2016). A pilot study evaluating the effectiveness of a mindfulness-based intervention on cortisol awakening response and health outcomes among law enforcement officers. *Journal of Police and Criminal Psychology*, *31*(1), 15–28. https://doi.org/10.1007/s11896-015-9161-x

Connor, K. M., & Davidson, J. R. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*, *18*, 76–82. https://doi.org/10.1002/da.10113

Crabtree, J. W., Haslam, S. A., Postmes, T., & Haslam, C. (2010). Mental health support groups, stigma, and self-esteem: Positive and negative implications of group identification. *Journal of Social Issues*, *66*, 553–569. https://doi.org/10.1111/j.1540-4560.2010.01662.x

Cruwys, T., Haslam, A. S., Dingle, G. A., Jetten, J., Hornsey, M. J., Desdemona Chong, E. M., & Oei, T. P. (2014). Feeling connected again: Interventions that increase social identification reduce depression symptoms in community and clinical settings. *Journal of Affective Disorder*, *159*, 139–146. https://doi.org/10.1016/j.jad.2014.02.019

Dingle, G. A., Cruwys, T., & Frings, D. (2015). Social identities as pathways into and out of addiction. *Frontiers in Psychology*, *6*, 1795. https://doi.org/10.3389/fpsyg.2015.01795

Dingle, G. A., Stark, C., Cruwys, T., & Best, D. (2015). Breaking good: Breaking ties with social groups may be good for recovery from substance misuse. *British Journal of Social Psychology*, *54*(2), 236–254. https://doi.org/10.1111/bjso.12081

Doosje, B., & Ellemers, N. (1997). Stereotyping under threat: The role of group identification. In R. Spears, P. Oakes, N. Ellemers, & S. A. Haslam (Eds.), *The social psychology of stereotyping and group life* (pp. 257–272). Oxford, UK: Blackwell.

Doosje, B., Ellemers, N., & Spears, R. (1995). Perceived intragroup variability as a function of group status and identification. *Journal of Experimental Social Psychology*, *31*(5), 410–436. https://doi.org/10.1006/jesp.1995.1018

Ellemers, N., de Gilder, D., & Haslam, S. A. (2004). Motivating individuals and groups at work: A social identity perspective on leadership and group performance. *Academy of Management Review*, *29*, 459–478. https://doi.org/10.5465/amr.2004.13670967

Ellemers, N., Kortekaas, P., & Ouwerkerk, J. W. (1999). Self-categorisation, commitment to the group and group self-esteem as related but distinct aspects of social identity. *European Journal of Social Psychology*, *29*(2–3), 371–389. https://doi.org/10.1002/(SICI)1099-0992(199903/05)29:2/3<371:AID-EJSP932>3.0.CO;2-U

Enggist, S., Møller, L., Galea, G., & Udesen, C. (2014). *Prisons and health*. Copenhagen, Denmark: World Health Organisation. Retrieved from http://www.euro.who.int/__data/assets/pdf_file/0005/249188/Prisons-and-Health.pdf?ua=1

Erskine, J. A., Georgiou, G. J., & Kvavilashvili, L. (2010). I suppress, therefore I smoke: Effects of thought suppression on smoking behavior. *Psychological Science*, *21*(9), 1225–1230. https://doi.org/10.1177/0956797610378687

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*, 1149–1160.

Fazel, S., Hayes, A. J., Bartellas, K., Clerici, M., & Trestman, R. (2016). Mental health of prisoners: Prevalence, adverse outcomes, and interventions. *The Lancet: Psychiatry*, *3*(9), 871–881. https://doi.org/10.1016/S2215-0366(16)30142-0

Frings, D., & Albery, I. P. (2015). The social identity model of cessation maintenance: Formulation and initial evidence. *Addictive Behaviors*, *44*, 35–42. https://doi.org/10.1016/j.addbeh.2014.10.023

Gallagher, M., Muldoon, O., & Pettigrew, J. (2015). An integrative review of social and occupational factors influencing health and wellbeing. *Frontiers in Psychology*, *6*, 1–11. https://doi.org/10.3389/fpsyg.2015.01281

Garland, E. L., Boettiger, C. A., Gaylord, S., Chanon, V. W., & Howard, M. O. (2012). Mindfulness is inversely associated with alcohol attentional bias among recovering alcohol-dependent adults. *Cognitive Therapy and Research*, *36*, 441–450. https://doi.org/10.1007/s10608-011-9378-7

Garland, E. L., Carter, K., Ropes, K., & Howard, M. O. (2012). Thought suppression, impaired regulation of urges, and Addiction-Stroop predict affect-modulated cue-reactivity among alcohol dependent adults. *Biological Psychology*, *89*(1), 87–93. https://doi.org/10.1016/j.biopsycho.2011.09.010

Garland, E. L., Froeliger, B., & Howard, M. O. (2014). Mindfulness training targets neurocognitive mechanisms of addiction at the attention-appraisal-emotion interface. *Frontiers in Psychiatry*, *4*, 173. https://doi.org/10.3389/fpsyt.2013.00173

Gleibs, I. H., Haslam, C., Haslam, S. A., & Jones, J. M. (2011). Water clubs in residential care: Is it the water or the club that enhances health and well-being? *Psychology & Health*, *26*, 1361–1377. https://doi.org/10.1080/08870446.2010.529140

Gu, J., Strauss, C., Bond, R., & Cavanagh, K. (2015). How do mindfulness-based cognitive therapy and mindfulness-based stress reduction improve mental health and wellbeing? A systematic review and meta-analysis of mediation studies. *Clinical Psychology Review*, *37*, 1–12. https://doi.org/10.1016/j.cpr.2015.01.006

Haddock, G., Foad, C., Windsor-Shellard, B., Dummel, S., & Adarves-Yorno, I. (2017). On the attitudinal consequences of being mindful: Links between mindfulness and attitudinal ambivalence. *Personality and Social Psychology Bulletin*, *43*(4), 439–452. https://doi.org/10.1177/0146167216688204

Haslam, C., Best, D., Dingle, G., Staiger, P., Savic, M., Bathish, R., … Lubman, D. (2019). Social group membership before treatment for substance dependence predicts early identification and engagement with treatment communities. *Addiction Research & Theory*, *27*(5), 363–372. https://doi.org/10.1080/16066359.2018.1537393

Haslam, C., Cruwys, T., Haslam, S. A., Dingle, G., & Chang, M. X. (2016). Groups 4 Health: Evidence that a social-identity intervention that builds and strengthens social group membership improves mental health. *Journal of Affective Disorders*, *194*, 188–195. https://doi.org/10.1016/j.jad.2016.01.010

Haslam, C., Jetten, J., Cruwys, T., Dingle, G. A., & Haslam, S. A. (2018). *The new psychology of health*. Abingdon, UK: Routledge.

Haslam, S. A., Jetten, J., Postmes, T., & Haslam, C. (2009). Social identity, health and well-being: An emerging agenda for applied psychology. *Applied Psychology: An International Review*, *58*, 1–23. https://doi.org/10.1111/j.1464-0597.2008.00379.x

Haslam, S. A., Haslam, C., Jetten, J., Cruwys, T., & Dingle, G. A. (in press). The social identity approach to health. In K. Sweeny & M. Robbins (Eds.), *Wiley encyclopedia of health psychology*. Abingdon, UK: Wiley.

Haslam, S. A., & Reicher, S. (2006). Stressing the group: Social identity and the unfolding dynamics of responses to stress. *Journal of Applied Psychology*, *91*(5), 1037–1052. https://doi.org/10.1037/0021-9010.91.5.1037

Heatherton, T. F., & Wagner, D. D. (2011). Cognitive neuroscience of self-regulation failure. *Trends in Cognitive Sciences*, *15*, 132–139. https://doi.org/10.1016/j.tics.2010.12.005

Hölzel, B. K., Lazar, S. W., Gard, T., Schuman-Olivier, Z., Vago, D. R., & Ott, U. (2011). How does mindfulness meditation work? Proposing mechanisms of action from a conceptual and neural perspective. *Perspectives on Psychological Science*, *6*, 537–559. https://doi.org/10.1177/1745691611419671

Hu, T., Zhang, D., & Wang, J. (2015). A meta-analysis of the trait resilience and mental health. *Personality and Individual Differences*, *76*, 18–27. https://doi.org/10.1016/j.paid.2014.11.039

Huppert, F. A. (2005). Positive mental health in individuals and populations. In F. A. Huppert, N. Baylis, & B. Keverne (Eds.), *The science of well-being* (pp. 307–340). Oxford, UK: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780198567523.003.0012

Imel, Z., Baldwin, S., Bonus, K., & MacCoon, D. (2008). Beyond the individual: Group effects in mindfulness-based stress reduction. *Psychotherapy Research*, *18*(6), 735–742. https://doi.org/10.1080/10503300802326038

Jetten, J., Haslam, C., & Haslam, S. A. (2012). The case for a social identity analysis of health and well-being. In S. A. Jetten, J. Haslam, & C. Haslam (Eds.), *The social cure* (pp. 3–20). Abingdon, UK: Psychology Press.

Jetten, J., Haslam, C., Haslam, S. A., Dingle, G., & Jones, J. M. (2014). How groups affect our health and well-being: The path from theory to policy. *Social Issues and Policy Review*, *8*(1), 103–130. https://doi.org/10.1111/sipr.12003

Jetten, J., Haslam, S. A., Cruwys, T., & Branscombe, N. R. (2018). Social identity, stigma, and health. In B. Major, J. F. Dovidio, & B. G. Link (Eds.), *The Oxford handbook of stigma, discrimination, and health* (pp. 301–316). Oxford, UK: Oxford University Press. https://doi.org/10.1093/oxfordhb/9780190243470.013.18

Jetten, J., Haslam, S. A., Cruwys, T., Greenaway, K. H., Haslam, C., & Steffens, N. K. (2017). Advancing the social identity approach to health and well-being: Progressing the social cure research agenda. *European Journal of Social Psychology*, *47*(7), 789–802. https://doi.org/10.1002/ejsp.2333

Jha, A. P., Morrison, A. B., Parker, S. C., & Stanley, E. A. (2017). Practice is protective: Mindfulness training promotes cognitive resilience in high-stress cohorts. *Mindfulness*, *8*(1), 46–58. https://doi.org/10.1007/s12671-015-0465-9

Johnson, T., & Fendrich, M. (2005). Modeling sources of self-report bias in a survey of drug use epidemiology. *Annals of Epidemiology*, *15*(5), 381–389. https://doi.org/10.1016/j.annepidem.2004.09.004

Jones, M. J., & Jetten, J. (2011). Recovering from strain and enduring pain: Multiple group memberships promote resilience in the face of physical challenges. *Social Psychological & Personality Science*, *2*, 239–244. https://doi.org/10.1177/1948550610386806

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology Science and Practice*, *10*(2), 144–145. https://doi.org/10.1093/clipsy.bpg016

Kellezi, B., Bowe, M., Wakefield, J., McNamara, N., & Bosworth, M. (2018a). Understanding and coping with immigrant detention: Social identity as cure and curse. *European Journal of Social Psychology*, *49*(2), 333–351. https://doi.org/10.1002/ejsp.2543

Kellezi, B., Bowe, M., Wakefield, J. R. H., McNamara, N., & Bosworth, M. (2018b). Coping with immigration detention: Social identities as cures and curses. *European Journal of Social Psychology*, *1–19*, 2543. https://doi.org/10.1002/ejsp.2543

Kellezi, B., & Reicher, S. (2012). Social cure or social curse? The psychological impact of extreme events during the Kosovo conflict. In J. Jetten, C. Haslam, & S. A. Haslam (Eds.), *The social cure: Identity, health and well-being* (pp. 217–233). Hove, UK: Psychology Press.

Keng, S.-L., Smoski, M. J., & Robins, C. J. (2011). Effects of mindfulness on psychological health: A review of empirical studies. *Clinical Psychology Review*, *31*(6), 1041–1056. https://doi.org/10.1016/j.cpr.2011.04.006

Khanna, S., & Greeson, J. M. (2013). A narrative review of yoga and mindfulness as complementary therapies for addiction. *Complementary Therapies in Medicine*, *21*(3), 244–252. https://doi.org/10.1016/j.ctim.2013.01.008

Klein, O., Spears, R., & Reicher, S. (2007). Social identity performance: Extending the strategic side of SIDE. *Personality and Social Psychology Review*, *11*(1), 28–45. https://doi.org/10.1177/1088868306294588

Koehler, J. A., Humphreys, D. K., Akoensi, T. D., de Ribera, O. S., & Loesel, F. (2014). A systematic review and meta-analysis on the effects of European drug treatment programmes on reoffending. *Psychol Crime Law*, *20*, 584–602. https://doi.org/10.1080/1068316X.2013.804921

Kuyken, W., Warren, F. C., Taylor, R. S., Whalley, B., Crane, C., Bondolfi, G., … Dalgleish, T. (2016). Efficacy of mindfulness-based cognitive therapy in prevention of depressive relapse. An individual patient data meta-analysis from randomized trials. *JAMA Psychiatry*, *73*(6), 565–574. https://doi.org/10.1001/jamapsychiatry.2016.0076

Lai, H. M. X., Cleary, M.Sitharthan, T., , & Hunt, G. E. (2015). Prevalence of comorbid substance use, anxiety and mood disorders in epidemiological surveys, 1990–2014: A systematic review and meta-analysis. *Drug and Alcohol Dependence*, *154*, 1–13. https://doi.org/10.1016/j.drugalcdep.2015.05.031

Liu, Y., Wang, Z., Zhou, C., & Li, T. (2014). Affect and self-esteem as mediators between trait resilience and psychological adjustment. *Personality and Individual Differences*, *66*, 92–97. https://doi.org/10.1016/j.paid.2014.03.023

Lyons, T., & Cantrell, W. D. (2016). Prison meditation movements and mass incarceration. *International Journal of Offender Therapy and Comparative Criminology*, *60*(12), 1363–1375. https://doi.org/10.1177/0306624X15583807

Mahdon, M., Heilbrunn, M., Adarves-Yorno, I., & Jones, E. (2017). *Mindful leader programme Naivasha: Impact report 2015–2017*. Exeter, UK: University of Exeter. Retrieved from http://blogs.exeter.ac.uk/innerrehabilitation/files/2017/07/Mindful-Leader-Programme-Naivasha-2015-to-2017.pdf

Miller, K., Wake, J. R. H., & Sani, F. (2015). Identification with social groups is associated with mental health in adolescents : Evidence from a Scottish community sample. *Psychiatry Research*, *228*, 340–346. https://doi.org/10.1016/j.psychres.2015.05.088

Nila, K., Holt, D. V., Ditzen, B., & Aguilar-Raab, C. (2016). Mindfulness-based stress reduction (MBSR) enhances distress tolerance and resilience through changes in mindfulness. *Mental Health and Prevention*, *4*(1), 36–41. https://doi.org/10.1016/j.mhp.2016.01.001a

Penal Reform International. (2018). *Global prison trends* (4th ed.). London, UK: Penal Reform International and Thailand Institute of Justice.

Pidgeon, A. M., & Keye, M. (2014). Relationship between resilience, mindfulness, and psychological well-being in university students. *International Journal of Liberal Arts and Social Science*, *2*(5), 27–32. https://doi.org/10.1016/j.paid.2015.09.005

Postmes, T., & Jetten, J. (2006). Reconciling individuality and the group. In T. Postmes & J. Jetten (Eds.), *Individuality and the group* (pp. 258–269). London, UK: Sage.

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry*, *57*, 316–331. https://doi.org/10.1111/j.1939-0025.1987.tb03541.x

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potential: A review of research on hedonic and eudaimonic well-being. *Annual Review Psychology*, *52*, 141–166.

Ryff, C. D., & Singer, B. (2003). Flourishing under fire: Resilience as a prototype of challenged thriving. In C. L. M. Keyes & J. Haidt (Eds.), *Flourishing: Positive psychology and the life well-lived* (pp. 15–36). Washington, DC: American Psychological Association.

Samuelson, M., College, C., Carmody, J., Kabat-zinn, J., & Bratt, M. A. (2007). Mindfulness-based stress reduction in Massachusetts correctional facilities. *The Prison Journal*, *87*(2), 254–268. https://doi.org/10.1177/0032885507303753

Sani, F., Herrera, M., Wakefield, J. R. H., Boroch, O., & Gulyas, C. (2012). Comparing social contact and group identification as predictors of mental health. *The British Journal of Social Psychology*, *51*(4), 781–790. https://doi.org/10.1111/j.2044-8309.2012.02101.x

Scarf, D., Moradi, S., McGaw, K., Hewitt, J., Hayhurst, J. G., Boyes, M., … Hunter, J. A. (2016). Somewhere I belong: Long-term increases in adolescents' resilience are predicted by perceived belonging to the in-group. *British Journal of Social Psychology*, *55*(3), 588–599. https://doi.org/10.1111/bjso.12151

Schofield, P. E., Pattison, P. E., Hill, D. J., & Borland, R. (2001). The influence of group identification on the adoption of peer group smoking norms. *Psychology and Health*, *16*, 1–16. https://doi.org/10.1080/08870440108405486

Shonin, E., Van Gordon, W., Dunn, T. J., Singh, N. N., & Griffiths, M. D. (2014). Meditation Awareness Training (MAT) for work-related wellbeing and job performance: A randomised controlled trial. *International Journal of Mental Health and Addiction*, *12*(6), 806–823. https://doi.org/10.1007/s11469-014-9513-2

Smith, J., Louis, W., & Tarrant, M. (2017). University students' social identity and health behaviour. In K. Mavor, M. Platow, & B. Bizumic (Eds.), *Self, social identity and education* (pp. 159–175). London, UK: Routledge.

Spijkerman, M. P. J., Pots, W. T. M., & Bohlmeijer, E. T. (2016). Effectiveness of online mindfulness-based interventions in improving mental health: A review and meta-analysis of randomised controlled trials. *Clinical Psychology Review*, *45*, 102–114. https://doi.org/10.1016/j.cpr.2016.03.009

Spinelli, C., Wisner, M., & Khoury, B. (2019). Mindfulness training for healthcare professionals and trainees: A meta-analysis of randomized controlled trials. *Journal of Psychosomatic Research*, *120*, 29–38. https://doi.org/10.1016/j.jpsychores.2019.03.003

Stewart-Brown, S., Tennant, A., Tennant, R., Platt, S., Parkinson, J., & Weich, S. (2009). Internal construct validity of the Warwick-Edinburgh Mental Well-being Scale (WEMWBS): A Rasch analysis using data from the Scottish Health Education Population Survey. *Health and Quality of Life Outcomes*, *7*(1), 15. https://doi.org/10.1186/1477-7525-7-15

Tajfel, H. (1972). Some developments in European social psychology. *European Journal of Social Psychology*, *2*(3), 307–321. https://doi.org/10.1002/ejsp.2420020307

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In J. A. Williams & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33–47). Belmont, CA: Wadsworth.

Tang, Y., Hölzel, B., & Posner, M. (2015). The neuroscience of mindfulness meditation. *Nature Reviews Neuroscience*, *16*, 213–225. https://doi.org/10.1038/nrn3916

Tarrant, M., Haslam, C., Carter, M., Calitri, R., & Haslam, S. A. (2020). Social identity interventions. In: M. S. Hagger, L. D. Cameron, K. Hamilton, N. Hankonen, & T. Lintunen (Eds.)., *Handbook of behavior change*. New York, NY: Cambridge University Press.

Thompson, O. (2018). *Exploring the mindful leader identity and its impact in a Kenyan prison* (Unpublished thesis). University of Exeter, Exeter, UK.

Turner, J. C. (1991). *Social Injikmre*. Milton Keynes, UK: Open University Press.

Turner, J. C. (1999). Some current issues in research on social identity and self-categorization theories. In N. Ellemers, R. Spears, & B. Doosje (Eds.), *Social identity* (pp. 6–34). Oxford, UK: Blackwell.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the social group: A self-categorization theory*. Oxford, UK: Basil Blackwell.

Turner, J. C., & Oakes, P. J. (1997). The socially structured mind. In C. McGarty & S. A. Haslam (Eds.), *The message of social psychology: Perspectives on mind in society* (pp. 355–373). Malden, MA: Blackwell Publishing.

Van Dam, N. T., van Vugt, M. K., Vago, D. R., Schmalzl, L., Saron, C. D., Olendzki, A., … Meyer, D. E. (2018). Mind the hype: A critical evaluation and prescriptive agenda for research on mindfulness and meditation. *Perspectives on Psychological Science*, *13*(1), 36–61. https://doi.org/10.1177/1745691617709589

Way, B. M., Creswell, D., Eisenberger, N. I., & Lieberman, W. D. (2010). Dispositional mindfulness and depressive sympomatology: Correlations with limbic and self-referential neural activity during rest. *Emotion*, *10*(1), 12–24. https://doi.org/10.1037/a0018312

Wegner, D. M., & Zanakos, S. (1994). Chronic thought suppression. *Journal of Personality*, *62*(4), 616–640. https://doi.org/10.1111/j.1467-6494.1994.tb00311.x

Witkiewitz, K., Bowen, S., Harrop, E. N., Douglas, H., Enkema, M., & Sedgwick, C. (2014). Mindfulness-based treatment to prevent addictive behavior relapse: Theoretical models and hypothesized mechanisms of change. *Substance Use & Misuse*, *49*, 513–524. https://doi.org/10.3109/10826084.2014.891845

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