

“I Would Just Feel Really Relaxed and at Peace”: Findings From a Pilot Prison Yoga Program in Australia

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Abstract

International research provides support for yoga as a well-being intervention in prison. No systematic research has been undertaken in Australia to assess the effectiveness of prison yoga programs. In 2017, the authors, in partnership with Australian Capital Territory (ACT) Corrective Services and the Yoga Foundation, introduced a weekly pilot yoga program at the ACT prison. This article presents quantitative and qualitative findings from the program. Although the small sample size ($n = 8$) is acknowledged, our findings indicate that participants attained statistically and clinically significant benefit from the program, demonstrated by improvements in their levels of depression, anxiety, self-esteem, goal-direction, negative affect, and non-acceptance. They also reported improved flexibility, sleep and relaxation, pain reduction, and identified improvements in their mental well-being, commenting that the program made them feel “calm” and “at peace.” The article concludes by advocating for the expansion of such programs in Australian prisons and further research on such programs.

Keywords

yoga, prison, meditation, Australia, prisoner well-being

This article presents quantitative and qualitative data on the impacts of an 8-week yoga program delivered from January to March 2017 at the Alexander Maconochie Centre (AMC), which houses all adult prisoners in the Australian Capital Territory

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(ACT; see generally Bartels & Boland, 2016; Young, van Dooren, Borschmann, & Kinner, 2017). This is the first yoga prison program in Australia to be the subject of evaluation (for discussion on the process of introducing the program, see Hopkins, Bartels, & Oxman, forthcoming).

The article begins by surveying the international research on the impact of yoga in prisoner populations, providing justification for an Australian pilot. We then consider the evidence with respect to Australian prisoners' physical and mental health. The article then describes the yoga program we introduced, before setting out our findings. These findings indicate that participants attained statistically and clinically significant benefit from the yoga program, demonstrated by improvements in their levels of depression, anxiety, self-esteem, goal-direction, negative affect, and non-acceptance. The participants reported improved flexibility, sleep and relaxation, as well as pain reduction. They also identified improvements in their mental well-being, commenting that the program made them feel "calm" and "at peace." The article concludes by advocating for the expansion of such programs in Australian prisons and further research on prison yoga programs.

Yoga in Prison: The International Experience

To our knowledge, this is the first research on a prison yoga program in Australia. As part of the preparation for this project, we contacted all correctional agencies in Australia to determine if they currently offer yoga programs to prisoners and whether they could provide any evaluation research of such programs within their jurisdiction. Although some agencies indicated that they offered or had offered such programs in the past (see also Rudd, 2017; Wright, 2011), none reported any research on these initiatives. This would appear to be consistent with Griera and Clot-Garrell's (2015) reference to the "camouflaged but increasingly prominent presence of holistic practices in the penitentiary context" (p. 155). In this section, we summarise the recent international evidence in respect of yoga prison programs, noting that there has been significant research interest in this area in recent years.

Auty, Cope, and Liebling (2017) completed a systematic review and two meta-analyses to examine whether prison yoga and meditation programs are significantly related to increased psychological well-being and improvements in the behavioural functioning of prisoners. Their searches included publications up to December 2014, yielding 24 studies from 23 publications for the systematic review and 13 studies for the meta-analysis. It should be noted that the majority of programs studied focused on meditation, rather than yoga, and their discussion tended to conflate the two.

Auty et al. (2017) found that participants who completed a yoga or meditation program in prison experienced small improvements in their psychological well-being and behavioural functioning. Their analysis suggested that there was a significant difference in effect sizes in relation to psychological well-being for programs of longer duration and less intensity, compared with those that were shorter and more intensive. Specifically, programs of longer duration had a slightly larger positive effect on behavioural functioning, compared with more intensive programs. They noted the

prevalence of mental health issues among prisoners, as discussed in the Australian context below, and suggested that yoga and meditation programs “have the potential to provide a cost-effective supplementary treatment,” while “techniques that improve an individual’s ability to cope with difficult emotions could be valuable” (p. 692). They also asserted that “the evidence suggests that yoga and meditation have favourable effects on prisoners” (Auty et al., 2017, p. 689).

Muirhead and Fortune’s (2016) literature review on yoga in prisons appears to have been completed at about the same time as Auty et al.’s (2017) research, as it included studies published up to December 2014 and neither paper referenced the other. Their analysis of five programs, two of which were also included in Auty et al.’s research (Bilderbeck, Farias, Brazil, Jakobowitz, & Wikholm, 2013; Landau & Gross, 2008), “point[ed] towards the rehabilitative benefits of yoga and meditative practices” (Muirhead & Fortune, 2016, p. 11), although they called for more research in this context.

Wimberly and Xue (2016) relied on an early version of Auty et al.’s research in their meta-analysis, which included research published up to January 2016 (although they did not include any studies published later than those identified by Auty et al. or Muirhead and Fortune). Wimberly and Xue ultimately included 10 papers referencing nine studies, including all those examined by Auty et al. (2017) and Muirhead and Fortune (2016). They found that the five hatha yoga programs examined demonstrated statistically significant decreases in stress, depression, anxiety, and neuroticism, whereas the three programs that focused on philosophy and spirituality were associated with improvements in aggression, anxiety, impulse control, spirituality, and reincarceration.

All three papers noted the methodological weaknesses of the studies they examined, including the lack of control groups, small samples sizes, and short follow-up periods. Karup likewise noted that there have been few methodologically rigorous studies, with “scant research on the long-term effects of yoga and its impact (if any) on recidivism” (Muirhead & Fortune, 2016, p. 6), although she suggested that it may “encourage reintegration into society and desistance from crime by helping individuals embrace an alternative identity” (Muirhead & Fortune, 2016, p. 9).

Two more recent studies adopted a randomised design. Kerekes, Fielding, and Apelqvist (2017) reported on the findings of a randomised controlled study of a 10-week yoga program in nine Swedish prisons. In this study, 77 participants were randomly assigned to a weekly 90-minute yoga class, whereas 75 were assigned to a control group, whose participants were asked to participate in 90 minutes of exercise each week. The authors found significant improvements on 13 of the 16 measured variables (e.g., less perceived stress, better sleep quality) among the yoga group, compared with improvements on two variables in the control group (perceived stress and psychological well-being). The yoga group were also more likely to show improved emotional well-being and improvements in computer tests that measure attention and self-control, as well as reductions in antisocial behaviour. The authors accordingly concluded that “yoga practice can play an important part in the rehabilitation of prison inmates” (Kerekes et al., 2017, p. 1).

Danielly and Silverthorne (2017) reported on female participants in a 10-week trauma-focused yoga program in two correctional facilities in South Carolina.

Participants were randomly allocated to the treatment group ($n = 33$) or a waitlist (i.e., control group, $n = 17$), with waitlisted participants joining the subsequent class. The authors found no significant initial differences between the groups on measures of anxiety, rumination or self-control. Anxiety and self-control scores decreased and increased, respectively, for the treatment group, although these findings were not statistically significant. By contrast, the control group reported a worsening or no change on these measures. There were no changes with respect to rumination levels. The authors concluded that yoga “is a relatively inexpensive intervention that could benefit both inmates and prison staff by reducing some negative behaviors and possibly mental health problems” (Danielly & Silverthorne, 2017, p. 9).

Unlike the previous studies considered, Karup (2016) presented qualitative findings from semi-structured interviews. Her sample comprised 11 prisoners randomly selected from 30 participants who participated in a weekly 90-minute yoga program in a male sex offender facility in the United Kingdom. She also examined 30 letters written by 10 prisoners between 2008 and 2015 to the Prison Phoenix Trust (2018), a charity whose mission is to introduce yoga and meditation to prisoners across the United Kingdom and Ireland.¹ Her findings considered issues such as participants’ motivation to participate in the program, their perspectives on the physical and psychological benefits of yoga and its contribution to their personal growth and transformation. She also described participants’ experience of the yoga class, before concluding that participating in yoga “helped prisoners by reducing stress and alleviating the tendency to ruminate in prison. . . [and] appeared to create opportunities for recovering a sense of self through its positive impact on feelings of control and self-worth” (Karup, 2016, p. 40). Although Karup (2016) acknowledged the self-selection bias likely in her study, she suggested that yoga may offer a supplementary form of rehabilitation, identifying “countless testimonies that yoga was a life-affirming experience with an array of transformational consequences” (p. 44).

Griera’s (2017) ethnographic study of yoga, delivered in three prisons in Spain in an intensive mode (consisting of either daily lessons for 40 days, or lessons three days per week for a two-month period), also provides a qualitative analysis and involved surveys with 54 prisoners as program participants, as well as interviews with a subset of these participants, yoga teachers, social educators, and other prison personnel ($n = 25$), supplemented by the researcher’s own field notes from participating in the yoga sessions. Although Griera (2017) did not seek to determine the impact of the yoga program on participants in any quantitative sense (e.g., reduced stress), her findings show some of the meanings yoga can provide to practitioners in a prison setting. Notably, she argued that yoga provides prisoners not only a form of physical exercise, but also “a doorway to a ‘spiritual stock of knowledge’” (p. 96). This is particularly significant, given that prison removes the ability “to govern one’s body, while the ongoing practice of yoga offers the feeling of recovering control over one’s body and mind” (Griera, 2017, p. 97).

A related paper by Griera and Clot-Garrell (2015) involved interviews with prisoners and prison staff and described the yoga class in more detail. In that paper, the authors noted that, through yoga, “participants regain control over their private space and a way to access what is perceived and defined as ‘the inner self’ or ‘authentic

self” (Griera & Clot-Garrell, 2015, p. 147). They reflected that the “scenography of the yoga class—with the music, incense, mats laid out around the room and lights partially turned off” helps prisoners to “cross. . . the threshold of the everyday reality of prison” (Griera & Clot-Garrell, 2015, p. 147). They also suggested that prison staff commonly perceived practices such as yoga and meditation to be “halfway between psychology or emotional education exercise and physical exercise that can indirectly help to rehabilitate inmates” (Griera & Clot-Garrell, 2015, p. 144).

Viorst (2017) undertook qualitative research, conducting interviews with eight former prisoners who had participated in a yoga program run by the Prison Yoga Project in San Quentin Prison in the United States for at least 18 months. The interviewees had been released for two to four years and had previously undertaken the program for between two and 10 years. This study was the only one that involved participants who were no longer incarcerated. Importantly for the purposes of our research, participants completed questionnaires designed to reflect their levels of aggression, depression, anxiety, and self-control. Although this study used different tests than we did, and did not provide pre- and post-program measures, it was the only other study we could identify which included both psychological testing measures and qualitative interview data. Viorst (2017) found that interviewees identified the nonphysical aspects of yoga, namely, breath control and meditation, to be “especially effective in rehabilitative efforts” (p. 20). All described reduced aggression and “greater emotional intelligence and awareness” (Viorst, 2017, p. 24). Some interviewees also commented on their desire to do no harm, the importance of community service and improved physical health outcomes. The interviewees had continued their yoga practice after release and identified the tools they had learnt in the program as “essential in the self-work needed to transition from prison back to society” (Viorst, 2017, p. 26). It is clear that participation in the study would have been heavily biased in favour of former prisoners who found yoga beneficial, a limitation acknowledged by Viorst. However, the perceived positive effects would appear to be supported by the psychological tests, which indicated that all interviewees had low or very low levels of depression, anxiety, and verbal aggressiveness, coupled with a high degree of self-control and self-awareness.

Australian Prisoners’ Physical and Mental Health

The data on the physical and mental health of Australian prisoners present a picture of compromised well-being, especially relative to the general Australian population. For example, Butler et al. (2006) found that prisoners were far more likely to be diagnosed with a mental disorder; the “overall prevalence of any psychiatric illness was 80% for prisoners and 31% (weighted) for the community. The contrast between prison and the community was most pronounced for substance use disorder (66% vs. 18%)” (p. 273).

The most recent national picture of the health of Australian prisoners is presented by the Australian Institute of Health and Welfare (AIHW, 2015). Overall, the AIHW (2015) found that prisoners had “higher levels of mental health problems, risky alcohol consumption, tobacco smoking, illicit drug use, chronic disease and communicable diseases than the general population” and their health was “sufficiently poorer than

in the general community such that prisoners are often considered to be geriatric at the age of 50-55” (p. 2). In addition, because nearly all prisoners are ultimately released back into the community, “the health issues and concerns of prisoners therefore become those of the general community” (AIHW, 2015, p. 3).

The AIHW data are not disaggregated on the basis of jurisdiction. The most recent picture of the health of prisoners in the ACT can be obtained from the *ACT detainee health and well-being survey* (Young et al., 2017). The data collection for this survey took place in October 2016, shortly before our program commenced. Not all of the questions in the ACT and national studies were the same, but those that were suggest a fairly similar profile. On the basis of the data set out in Table 1, our study sample is likely to be representative of incarcerated individuals in Australia.

Method

Participants

The participants were male detainees ranging in age from 18 to 49 years. Selection of the participants was undertaken by ACT Corrective Services and suitability to participate in the yoga program was determined by the AMC staff. Participants were recruited through advertisement in the prison. This was done through the placement of posters in the prison, as well as through the AMC staff and word of mouth among the detainees themselves. Participants’ signed informed consent was gained prior to them participating in the project.

Eighteen detainees at the AMC completed the initial interview and questionnaires prior to the yoga program, of whom eight completed the program. In addition, one participant who completed the program joined the program after the initial interviews were conducted, and hence only completed the postprogram interview and questionnaires. His data were not included in the final analysis, but his responses to the post-program qualitative interview were included in the qualitative research. Descriptive data on the 18 prisoners who completed the initial interview and questionnaires prior to the yoga program are set out in Table 2.

Nine participants completed the program, with completion defined as having attended a minimum of five of the eight classes taught by the yoga teacher (M.E.). All nine attended the first class and the last two classes, three attended all eight classes, two attended seven classes, two attended six, and two attended the minimum five classes.

Of the nine who participated in the initial interview, but did not complete the program, six did not attend any classes. Two attended the first class and then did not subsequently attend and one attended two classes before being released from prison.

Design

This project has ethics approval from the University of Canberra, Australia, where two of the authors were employed at the time the research was undertaken. The project was

Table 1. Australian and ACT Data on Key Indicators of Prisoner Health.

Measure	AIHW data	ACT data
Physical health	30% experienced long-term limiting condition	33% experienced chronic pain 34% reported back problems 41% had tooth decay 5% reported eating the recommended daily serve of vegetables
Substance use	74% were current smokers 67% had used illicit drugs in previous year 39% reported high risk of alcohol-related harm in previous year	79% had smoked in year before imprisonment 63% had used meth/amphetamine and 50% had used cannabis in the year before imprisonment 36% reported harmful levels of alcohol use
Mental health	49% told by health practitioner they had a mental health disorder 31% showed high/very high levels of psychological distress 23% had intentionally harmed themselves	30% reported depression 32% reported anxiety 35% had attempted suicide
Intellectual disability and brain injury		28% screened positive for intellectual disability 52% had experienced a head injury resulting in loss of consciousness
Education	32% had only completed up to Year 10 (aged 15-16)	
Employment	48% unemployed in month before imprisonment 24% had organised paid employment to commence within fortnight of release	55% unemployed in 6 months before imprisonment
Social security	79% expected to receive government payments on release	
Housing	25% homeless before imprisonment	21% in unstable housing before imprisonment
Parental incarceration	17%	22%
Removal from family		24%

Note. ACT = Australian Capital Territory; AIHW = Australian Institute of Health and Welfare.

conceptualised as a small-scale pilot, conceived on the basis of the authors’ personal experience with yoga and meditation, as well as our professional experience with prisoner populations. Pre- ($n = 8$) and post-program ($n = 9$) quantitative well-being data were collected and a within-subject design was employed to assess changes before and after the yoga program, with pre- and post-test scores on the same measures compared

Table 2. Descriptive Data on the Prisoners Who Completed Preprogram Interview and Questionnaires ($n = 18$).

	Completers ($n = 8$)	%	Not completers ($n = 10$)	%
Age				
18-24	3	37.5	3	30
25-29	3	37.5	2	20
30-34	0	0	4	40
35-39	0	0	0	0
40-44	2	25	1	10
Ethnic identification^a				
Aboriginal	3	37.5	1	10
Torres Strait Islander	1	12.5	0	0
Australian	7	87.5	9	90
Pacific Islander	1	12.5	2	20
Middle Eastern	1	12.5	0	0
Other	1	12.5	0	0
Religion				
Christianity	3	37.5	3	30
Secular beliefs/spirituality	0	0	1	10
No religion	5	62.5	6	60
Relationship status^a				
Never married	5	62.5	9	9
Married/De facto	2	25	1	10
Separated	1	12.5	0	0
Other	0	0	2	20
Children				
Yes	3	37.5	4	40
No	5	62.5	6	60
Education level				
Year 8, below or none (<14)	3	37.5	2	20
Year 9 (14-15 years)	3	37.5	1	10
Year 10 (15-16 years)	2	25	4	40
Year 11 (16-17 years)	0	0	1	10
Certificate/diploma	1	12.5	1	10
Postgraduate degree	0	0	1	10
Security classification				
Minimum	1	12.5	2	20
Medium	6	75	5	50
Maximum	1	12.5	1	10
No answer	0	0	2	20
Previous yoga experience				
No	8	100	8	80
Yes, a bit	0	0	2	20
Previous meditation experience				
No	3	37.5	4	40
Yes, a bit	5	62.5	6	60

^aSome participants indicated more than one category.

for each participant. In addition, a between-subjects design was employed to compare the scores of those participants who completed the program with those who completed the initial measures, but decided not to complete the program.

Qualitative data were also collected just over a week after the program ended through pre- ($n = 8$) and post-program ($n = 9$) audio-recorded interviews. The pre-program semi-structured interview schedule asked participants what they were hoping to get out of the yoga program; whether they had any worries about the program; and whether their feelings and thoughts bothered them and, if so, how often. The post-program interview schedule included questions on whether the program was what the participants had expected; the impact on their body and mind; the best and worst parts of the program; whether they practised outside of class and, if not, why not; what they thought of M.E. and the prison psychologist who participated in the program (L.M.); what the other prisoners thought about the program; and suggestions for future yoga programs.

It was intended that these interviews would be supplemented by follow-up interviews two months later. However, though invitations were extended to all participants, only two who had completed the program attended. The reason for this was not entirely clear; however, as one of those who did attend explained, there had just been a death at the AMC and he suggested that this may have affected participants' desire to speak on the day. We also invited those who had initially expressed interest and completed well-being testing to attend an interview to talk to us about why they did not participate in the program. Only one person attended and we have considered his feedback elsewhere (Hopkins et al., forthcoming).

Measures

For each participant, pre- and post-intervention scores were compared for the following variables.

Depression, anxiety, and stress (DASS-21). The DASS is an inventory comprised of three 7-item self-report scales designed to measure the negative emotional states of depression, anxiety, and stress; Lovibond & Lovibond, 1995). The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress scale assesses difficulty in relaxing, nervous arousal and being easily upset/agitated, irritable/overreactive, and impatient. Participants rated their experiences over the past week on a 4-point severity/frequency scale, ranging from 0 = *did not apply to me at all* to 3 = *applied to me very much, or most of the time*. The scales of the DASS have been shown to have high internal consistency and to yield meaningful discriminations in a variety of settings (Lovibond & Lovibond, 1995; Norton, 2007).

Positive and negative affect scale (PANAS). The PANAS is a 20-item self-report instrument that comprises two 10-item mood scales, one scale measuring positive

affect (e.g., interested, excited, inspired) and the other measuring negative affect (e.g., distressed, upset, scared; Watson, Clark, & Tellegen, 1988). Items are rated on a 5-point scale, ranging from 1 = *very slightly, or not at all* to 5 = *extremely*. Participants were required to indicate the extent to which they felt certain feelings and emotions over the past week. The PANAS has been found to have sound psychometric properties, including high reliability (Crawford & Henry, 2004; Watson et al., 1988).

Difficulties with emotion regulation scale (DERS). The DERS is a 36-item self-report measure assessing difficulties in managing emotions (Gratz & Roemer, 2004). It is made up of six subscales that assess acceptance of emotional responses, difficulties engaging in goal-directed behaviour impulse control difficulties, emotional awareness, access to emotion regulation strategies, and emotional clarity. The measure consists of 36 items and uses a 5-point Likert-type scale, ranging from 1 = *almost never* to 5 = *almost always*. The DERS has high internal consistency (Gratz & Roemer, 2004; Safer, Robinson, & Jo, 2010).

Rosenberg self-esteem scale (RSES). The RSES is a 10-item self-report questionnaire that asks respondents to reflect on their overall evaluation of their self-worth (e.g., "On the whole, I am satisfied with myself" [reverse scored] and "I certainly feel useless at times"). Items are rated on a 4-point scale, ranging from 1 = *strongly agree* to 3 = *strongly disagree* and the scale score ranges from 0 to 30, with 30 reflecting the highest rating of self-esteem. The psychometric properties of the RSES have been well established, including the fact that it has good internal consistency (Hyland, Boduszek, Dhingra, Shevlin, & Egan, 2014; Rosenberg, 1965).

Procedure

Each class ran in a group format for approximately one hour. The program ran for 10 consecutive weeks. Classes in the third and fourth week were facilitated by L.M., due to M.E. being unavailable. L.M. expressed concerned about the group losing momentum and interest. To address this, she invited the participants to attend on the standard day and time in the two weeks of the teacher's absence so that, with her guidance, they could practise what they had learned to that point. This had not been planned into the program, but was very well received by the participants, who commented upon this in their post-program interviews, noting in particular the commitment L.M. showed to them and the program. The remaining six classes were held after M.E.'s return.

The classes proceeded on the basis of an experiential or "learning by doing" model. As M.E. explained in his post-program interview, his objective was to teach participants a basic 20-minute routine that they could practise by themselves. This included "sun salutations," stretches, balancing poses, and meditation. Breath awareness was explicitly built into the learning of each movement and as part of routine progression from movement to movement. Classes also started and finished with periods of breath awareness meditation in the absence of movement. An instruction sheet was provided

after the second class, with basic movements and poses shown in picture form. Practice outside of formal classes was encouraged, though there was no attempt by M.E. to check in individually with participants, week-to-week, with respect to whether any practice had taken place.

No effort was made by the authors or ACT Corrective Services to define or control the way M.E. would deliver the program. There was no suggestion made to him that he should focus on any particular aspect of yoga (*e.g.*, theory or meditation) or explicitly tailor his teaching for the environment. We adopted this approach because M.E. was a very experienced teacher delivering the program on a volunteer basis. However, we recognise that standardising interventions is desirable for the purposes of program replicability.

The final class concluded with a graduation ceremony. This was suggested by L.M., who was cognisant of the benefits of celebrating prisoner success (Maruna, 2001). The Senior Manager of Corrections Psychological Support Services attended the ceremony and made a short speech congratulating the participants. Following this, each participant was presented with a yoga mat donated by a local yoga studio.

Results

The reasons for participating in the program varied, with half of the prospective participants ($n = 9$) explicitly nominating mental well-being—referring to relaxation or stress reduction—as their primary motivation. In addition, seven indicated that their motivation was because the program would give them something to do or because it was just something to experience, while five stated that at least part of their motivation was for physical well-being, primarily for the purpose of stretching and increasing their flexibility. Of the nine participants who completed the program, three had indicated their motivation was simply something to do, while the remaining six had nominated either physical and/or mental well-being as their motivation.

Overall, participants showed improvement on most of the quantitative measures employed and providing positive feedback on their experience in the program. No participants described any negative outcomes associated with the program.

Quantitative Findings

All analyses were conducted using the SPSS statistical package (Version 24). An alpha level of .05 was used for all statistical tests and two-tailed *t*-tests were used to examine for an unanticipated result (Howitt & Cramer, 2014).

Independent sample *t*-tests were used to compare scores on pre-yoga measures for those who completed the yoga program and those who did not. There were no significant differences between the groups on the majority of measures, with the exception of DERS non-acceptance and strategies subscales. This indicates that those who did not complete the yoga program had higher levels of non-acceptance of their emotions, and poorer strategies for coping with their emotional distress, compared with program

completers. Follow-up data for the noncompletion group would have allowed for a more meaningful comparison between groups.

Changes in pre- to posttreatment outcomes. Paired sample *t*-tests were used to compare scores on pre- and post-yoga measures for those who completed the yoga program. The following presents the results for the participants who completed the yoga program and both pre- and posttest measures ($n = 8$). The pre- and post-yoga program means, standard deviations, effect size (Cohen's *d*), confidence intervals, and probability values for *t* for each of the outcome measures are presented in Table 3. The results showed a statistically significant difference in scores on four measures (DASS-21, DERS, and RSES). The lack of emotional clarity DERS subscale almost reached significance, at $p = .0563$.

Although the results for the other scales were not statistically significant, Cohen's *d* was used following each pre–post mean comparison, to determine the size of the effect obtained (Table 3). Effect sizes were considered in line with the recommendations of both Cohen (1977) and Wolf (1986), respectively: (a) $.20 =$ small; $.50 =$ moderate; and $.80 =$ large and (b) $.25 =$ educationally significant (something was learned); $.50 =$ clinically significant (something really changed). The DASS anxiety subscale ($d = 0.8$), PANAS positive subscale ($d = 0.8$) and DERS non-acceptance subscale ($d = 0.5$) had moderate-to-large effect sizes, indicating clinically significant differences in participants' pre- and post-test scores. The discrepancy between statistically nonsignificant results and the large effect sizes is likely due to low statistical power, given the small sample size.

Qualitative Findings

The following discussion reflects on the physical and mental benefits identified by participants, which “often mesh and merge together” (Karup, 2016, p. 25).

All of those who completed the program ($n = 9$) were asked about the effect that participation had had on their physical well-being and any changes they had noticed in their body. Responses were uniformly positive in terms of physical benefit, with all but one participant referring to the experience and benefit of increased flexibility. The one participant who did not comment on flexibility referred to yoga making him feel more “energetic.” When asked about the best part of the program, P2 commented that he “really enjoyed getting stretches,” going on to explain that he was “not very flexible in the legs.” P6 similarly commented on his increased flexibility as a consequence of the stretches, some of which he used to support his regular weight-training. He stated that through the use of these stretches he was “getting more flexible [and] not just flexible. I am not as sore.”

Some participants commented on the impact that the program had on longer term experiences of pain and incapacity. For example, P1 explained, “I’ve got plates and screws in my spine and I can stretch a lot better and I just feel physically stronger now.” He reflected on the core strength that yoga had enabled him to develop, which was assisting his long-term rehabilitation after an accident. P5 commented that he had

Table 3. Means (Standard Deviations), Effect Size, Confidence Intervals, and Probability Values for *t* for the DASS-21, the PANAS, the DERS, and RSES.

	M (SD) pretreatment	M (SD) posttreatment	Cohen's <i>d</i> pre-post	95% Confidence interval	<i>t</i>	<i>df</i>	<i>p</i>
DASS-21							
Depression	4.50 (3.96)	1.75 (2.71)	0.8	[1.09, 4.41]	3.92	7	.006**
Anxiety	5.00 (3.55)	2.50 (2.45)	0.8	[-0.50, 5.50]	1.97	7	.089
Stress	6.63 (4.03)	3.13 (2.85)	0.9	[0.86, 6.14]	3.13	7	.017**
PANAS							
Positive affect	30.43 (7.93)	35.57 (5.06)	0.8	[-10.83, 0.54]	-2.21	6	.069
Negative affect	19.00 (6.76)	14.71 (3.20)	0.8	[-2.85, 11.42]	1.47	6	.192
DERS							
Non-acceptance of emotional responses	10.13 (4.19)	8.38 (2.83)	0.5	[-0.13, 3.63]	2.20	7	.064
Difficulties engaging in goal-directed behaviour	14.25 (3.89)	11.75 (3.20)	0.7	[0.18, 4.82]	2.55	7	.038**
Impulse control difficulties	12.50 (3.59)	11.13 (1.55)	0.5	[-1.19, 3.94]	1.27	7	.245
Lack of emotional awareness	17.43 (6.11)	18.14 (5.73)	0.1	[-4.77, 3.34]	-0.43	6	.682
Limited access to emotion regulation strategies	15.13 (3.52)	13.38 (4.37)	0.4	[1.82, 5.32]	1.16	7	.284
Lack of emotional clarity	13.13 (3.76)	12.63 (1.60)	0.2	[1.45, 2.45]	0.61	7	.563
RSES	15.43 (2.99)	13.86 (2.97)	De30.5	[0.67, 2.47]	4.26	6	.005**

Note. DASS = Depression, Anxiety and Stress Scale; PANAS = Positive and Negative Affect Scale; DERS = Difficulties with Emotion Regulation Scale; RSES = Rosenberg Self-esteem Scale.
^{**}*p* < .05.

had a bad knee for years and that, as a consequence of the program, "it was starting to do alright," while P3 commented that he had found the stretches had helped him with his "bad back."

Several participants commented on the fact that the yoga improved their sleep. For example, P3 stated that he generally found it hard to sleep, but every night after the yoga program, "it made it a bit easier to sleep. Not the next night but just that night." P6 indicated that, on the night after the yoga session, "it was a lot easier to go to sleep." Similarly, P7 noted the positive impact the session had on his sleep, not just on the night after yoga but at "other times as well." Many participants in Karup's (2016) study likewise commented on the positive benefit that yoga had on the length and quality of their sleep. As she noted, this is significant, given that insomnia has been recognised as a common and serious problem in prison populations, which has been linked to suicide prevalence.

All participants commented upon the fact that the program had relaxed them. Indeed, some prisoners were quick to express the mental health benefits of the program even before being asked about the effect they had noticed on their mind. For example, after referring to stretching and being asked about other changes he had noticed with his body that he attributed to the program, P5 stated, "it just made your mind like, I don't know how you say it . . . like more relaxed." He went on to relate that he had been "sort of depressed" before the program, but had ended up looking forward to the program each week. P3 reflected that "it was something I looked forward to each week, towards feeling relaxed and calm. I would just feel really relaxed and at peace."

Unlike other participants, P3 drew a direct link between the stretching and breathing exercises and his experience of relaxation. He also commented that it made him have "less thoughts going through my head." When asked about the effects on his mind, P6 reflected that "it was calming," going on to explain,

you would have a negative day, like a shit day, and then come there and after you had done it, it was nice, it was calming. Like sometimes you didn't feel like starting but once you started, you know, and the effects lasted, they were ongoing.

Interestingly, when asked if there was anything else he wanted to say about how participation made him feel, P6 said, "it just made me feel good about myself," going on to state "I felt equal." P2 commented that, after attending the session each week, he felt, "A bit happier. A bit more at peace. A bit more relaxed."

P7 went further when speaking of the impact on his mind, stating that, during the yoga session, "it just made everything go away, I guess. I just forgot about everything." He went on to say, "it just clears your mind . . . puts you in a good mood" and that this lasted "for the rest of the day and maybe even the next day." P8 explained that, for him, "it eases your mind . . . settles you down if you are stressing out." He went on to refer to the dramas of being inside the prison and explained, "I'd go there and just mellow out; be in my own world." P7 noticed that participation had changed how he interacted with other prisoners, acknowledging its impact on "how I approached people. More calm. More relaxed." This response

echoes the observation of the social workers interviewed by Grier and Clot-Garrell (2015) that holistic practices such as yoga “encourage quiet and smooth relationships between inmates” (p. 152). P1 addressed the question of the impact he had noticed on his mind in general terms, noting that it had made him “feel a lot better about myself” and that he looked forward to the sessions. P4 simply stated, “it relaxed me heaps . . . just every kind of way.” The foregoing observations again overlap with those of the participants in Karup’s (2016) study, who described yoga class as “peaceful and calming” (p. 18) and commented on its benefits in helping them deal with “over-thinking” (p. 26).

Follow-up interviews. Only two participants (P2 and P6) attended for the follow-up interview scheduled just over two months after the completion of the program. Other than the speculation of one of the prisoners recorded above in relation to a recent death of a prisoner, we have no explanation for this limited attendance. Prisoners had not been offered any follow-up or refresher yoga classes to maintain their practice. When asked about whether he continued with his yoga practice, P2 stated that he continued to do this “just sort of quietly on my own. . . . I’ve moved to a cottage now. So I just do it on my own now. I’ve still got my mat.” He went on to explain,

I practise a couple of poses that are on that sheet. I don’t know their names. I don’t do it as much as I did when we were doing the course. I did a hell of a lot more then. That’s just because I keep myself very busy. So I just haven’t had the time at the moment to do as much as I’d like, but I still do it a little bit . . . It’s more about the breathing exercises, helping me relax. I do the stretching and that.

P2 reiterated that the key value of his participation had been in enabling him to attend a class to “stretch and relax and take you out of where you are.” He continued,

It was nice having something to do each Monday. . . it’s not like art. . . it was different, it could take you out of where you are. It’s relaxing for an hour, rather than focusing on jail politics and all the other shit that goes on here.

When asked about whether he was keeping up any part of the practices, P6 said that he continued to use a number of the stretching positions, “like downward dog” and chest stretches to “loosen himself up.” He said that he could not remember the whole movement routine, but was linking some of the moves/postures together in sequence and that this was helping him with his lower back preventing him from suffering a recurring injury. P6 went on to explain that he was using breathing techniques from the yoga class in his stretching, when working with weights and also to help himself sleep. He also explained his use of progressive muscle relaxation, where, at night, he would move his attention from body part to body part, tensing, and then relaxing them. P6 was asked if the program had changed anything for him in a long-term way and his considered response suggested the program had had a

significant impact. He said “Well it did. I don’t know. I feel more calm. Not as tense. I can breathe when things. . . I don’t know, I just feel more free.”

Discussion and Conclusions

Viorst (2017) recently commented on “the potential benefits of yoga for prisoners and for society at-large [sic] through cost-effective mindfulness interventions in incarceration settings” (p. 30), while Auty et al. (2017) concluded that “there is sufficient evidence to date to suggest that yoga and meditation practices have promising effects on prison populations” (p. 706). Sinclair (2017), an experienced prison yoga teacher in New Zealand, recently observed that “[p]art of the attraction of yoga (and why it can be particularly suited to prison populations and environments) is that it presses a number of buttons simultaneously” (p. 91), namely, as a form of exercise, treatment modality, group activity, body-centred mindfulness practice and technical skill. Our findings indicate various motivations for undertaking the program (physical, mental, and “something to do”), suggesting that it is likely to be suitable for a range of prisoners, regardless of their initial motives and expectations.

Against this background, our findings provide the first Australian research on the outcomes of a pilot prison yoga program. Unlike most of the research in this area, they also combine quantitative and qualitative findings, providing an opportunity for the participants’ comments on the program to supplement their results on standard psychological measures. Although the sample is small, it appears representative of Australia’s incarcerated population, and provides modest supportive evidence for the possible benefits of yoga programs in prison settings.

In line with earlier research, our findings indicate that participants’ self-reported level of depression and stress had reduced at the completion of the yoga program and their self-esteem had increased. In addition, participants reported statistically and clinically significant benefits in their positive and negative affect, as well as in their non-acceptance of emotional responses, goal-directed behaviours, and impulse control. Participants also experienced improved flexibility, sleep and relaxation, pain reduction, and improvements in their mental well-being. Notably, no participants described any negative outcomes associated with the program. The qualitative interviews provide valuable insights into the physical benefits of the program, which are not fully captured in the quantitative questionnaires.

The fact that the prospective participants who did not complete differed from program completers on one measure, related to coping strategies, raises a question about implementation. Our findings suggest the need for strategies to help people attempt the course, and stick with it, in circumstances where they have characteristics that might both undermine their participation, but also indicate they might benefit particularly from the program.

We acknowledge that the apparent benefits of the program may have been due to participation in an intervention. It was unfortunately not possible to determine if the eight detainees who ultimately participated in the program were representative of the broader prison population, although they appeared on most measures to be similar to

those who expressed interest in the program, but did not proceed with it. In addition, some of the contextual variables that may have influenced the results (e.g., length of punishment and concurrent participation in other programs aimed at rehabilitation) were not examined. We must also acknowledge the possibility that those who chose not to return for the second interview may have found the program unrewarding.

We recognise that caution is required in making any assertions based on the current findings, given the small sample size. Due to the small scale of the project and the research aims, it was not possible to identify a control group. Although we acknowledge that this is a limitation of the present project, it is broadly in keeping with the international experience, with most studies likewise lacking a control group (cf. Danielly & Silverthorne, 2017; Kerekes et al., 2017). In circumstances where there is an absence of published research on yoga (or meditation) programs in Australian correctional settings, our intent was to lay a foundation for future program offerings and argue for further research, although the challenges of undertaking research of this nature must be considered. For example, Auty et al. (2017) noted that “experimental research in prisons is very difficult to carry out in practice” (p. 700; see also Muirhead & Fortune, 2016). Further research with a larger sample size is clearly required and such research should ideally involve a randomised control design (see, for example, Bilderbeck et al., 2013; Kerekes et al., 2017). Given the challenges of undertaking research of this nature and obtaining a sufficient sample size in a prison setting, an alternate approach would be to undertake a single-case design with at least four data points, although this also presents logistical challenges. We also note that there is scope to improve our research methods to explore the mind–body connection of yoga, with most research methods treating the physical and mental aspects of yoga as separate, rather than interconnected. In the interim, however, our findings align with the international research and suggest that more widespread introduction of yoga programs would bring physical and mental benefits to Australian prisoners.

Authors’ Note

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Note

1. The first author visited the Prison Phoenix Trust in 2015 to discuss how to establish a prison yoga program.

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