Chapter 4

Effects of Cognitive-Behavioural Therapy (CBT) and Positive Psychological Intervention (PPI) on female offenders with psychological distress in Hong Kong

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Abstract

Background Despite rapid growth in the female prison population, there is little research on effectiveness of psychological interventions for them.

Aims To test the hypotheses that

(1) each of two psychological interventions administered separately – cognitive behavioural therapy (CBT) or positive psychology intervention (PPI) – would be more effective than 'treatment-as-usual' alone in reducing psychological distress and enhancing psychological well-being;

(2) outcomes would differ according to intervention; and

(3) combining the interventions would be more effective than delivering either alone.

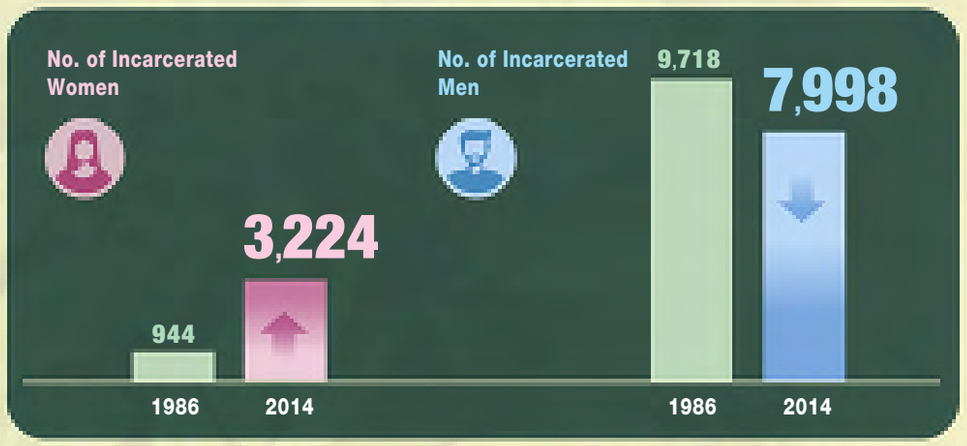
Methods We recruited 40 women in a special Hong Kong prison unit for female offenders with psychological distress. Half of them received eight sessions of CBT followed by eight sessions of PPI; the other half received the same interventions in the reverse order. We recruited another 35 women who received only 'treatment as usual' (TAU) in the same unit. We used various clinical scales to assess the women's psychological distress or well-being before and after the interventions or at similar time points for the comparison women.

Results All intervention group women showed a significant reduction in psychological distress and enhancement in psychological well-being after each intervention alone compared to the TAU women. There were no significant differences between CBT and PPI in this respect. Receiving both treatments, however, did yield significantly more improvement than either intervention alone in reducing depressive thoughts and enhancing global judgement of life satisfaction, self-perceived strengths and hopeful thinking style.

Conclusions and implication for practice Our findings provide preliminary empirical support for the effectiveness of psychological interventions with psychologically distressed women in prison. It would be important now to conduct a full, randomised trial to determine optimal length and combinations of treatment.

Background

In Hong Kong, the number of incarcerated women has tripled from 944 in 1986 to 3224 in 2014, while the number of incarcerated men decreased from 9718 to 7998 over the same period (Hong Kong Special Administrative Region [HKSAR], 2015). The continued rise of numbers of female prisoners is probably related to the flood of sex workers from Mainland China to Hong Kong (Lau, 2015). Despite the rapid growth of the female prison population in many other countries too (Walmsley, 2015), there is little research on psychological interventions for incarcerated women. Most prison-based interventions are designed for men in correctional settings (Lewis, 2006). Although their needs are distinct, evidence-based treatment tailored for female prisoners is lacking (Fazel et al., 2016). Female offenders' gender-specific needs are, thus, being overlooked.



Gender-specific needs of female offenders

Studies with incarcerated women indicate that their needs differ from those of men, partly following from women's apparently disproportionate history of emotional, physical and sexual victimisation, and partly from their child-rearing responsibilities (LeClair, 1990). **Women offenders are more likely to suffer from mental health problems than their male counterparts** (James and Glaze, 2006). Depression, anxiety and self-harm behaviours are more prevalent among female than male offenders (Bloom et al., 2003). As indicated in The Offender Health Research Network (2010), the percentage of female offenders with clinically significant indicators of being suicidal is about twice that of male offenders (16% vs. 8%). Furthermore, female offenders have about four times the rate of co-occurring diagnoses, such as depression and substance abuse, as male offenders (Blume, 1997).

Percentage of offenders with clinically significant indicators of being suicidal

Treatment approaches for female offenders

Cognitive-behavioural therapy (CBT) is among the more promising interventions being recognised for offenders (Pearson et al., 2002; Lipsey et al., 2007) and well evidenced as a critical component of the effective treatment of psychological disorders (Butler et al., 2006). Nonetheless, according to the World Health Organization (2015), mental health is related not only to the treatment and prevention of mental disorders but also the promotion of well-being. This constitutes a new era to **consider both 'deficits' and 'strengths' during assessments and treatments** (Wright and Lopez, 2002). Among mainstream psychological interventions, positive psychological intervention (PPI) is considered to be a promising approach that emphasises the cultivation of positive cognition, feelings and behaviours (Parks-Sheiner, 2009; Sin and Lyubomirsky, 2009; Bolier et al., 2013). Several core treatment components in PPI, such as hope, strengths and gratitude, are proposed as effective in reducing psychological distress and enhancing psychological well-being (Diener et al., 2002; Seligman et al., 2005; Ho et al., 2012, 2015). Hence, integration of CBT and PPI into a single treatment approach could be beneficial.

Psychological Gymnasium (PSY GYM)

In 2011, given the psychological needs of female offenders, the Hong Kong Correctional Services set up an institution-based personal growth and emotion treatment centre, PSY GYM, to provide gender-specific psychological services for women offenders. Psychological gymnasium is the first facility in Asia to pioneer an integrated approach of CBT and PPI for them. Due to limited capacity and the early developmental stage of PSY GYM, the programmes are still run on a small scale. They are designed for female offenders with moderate-to-high levels of psychological distress. In order to be eligible for the PSY GYM, women must fulfil the following criteria: (1) have no active psychotic symptoms; (2) be able to comprehend written Chinese and understand Cantonese satisfactorily; (3) to have an unfinished sentence length adequate for completion of the programmes; and (4) have no seriously disruptive, subversive tendency or other special problems that might adversely affect operation of the programmes. Candidates for the PSY GYM are usually referred by front-line staff, management teams and/or medical officers when they observe that a woman is suffering from emotional problems. Participation in PSY GYM is completely voluntary.

The PSY GYM unit is residential, to facilitate establishment of a therapeutic environment. The intervention programme is based on CBT (Beck, 1967; MacKenzie, 2006) and PPI (Snyder et al., 2000; Emmons and Shelton, 2002; Peterson and Seligman, 2004; Seligman et al., 2006; Ho et al., 2012, 2015) and consists of 16 sessions (eight of CBT, eight of PPI) over 2–3 months. Every week, the participants attend two half-days of group therapeutic sessions. Participants are discharged together from the PSY GYM wing after completion of the programme.

Research aims and hypotheses

Our aim was to evaluate the effects of CBT and PPI on female offenders in PSY GYM. Our first hypotheses was that CBT and PPI would each be associated with more reduction in psychological distress and enhancing psychological well-being than 'treatment-as-usual' (TAU) for these female offenders with psychological distress.

Our second hypothesis was that there would be some significant differences between these treatments in type of effect – specifically that CBT would be more effective in reducing psychological distress and PPI more effective in enhancing psychological well-being for this group. Our third hypothesis was that the combination of CBT and PPI would be more effective than either alone in reducing psychological distress and enhancing psychological well-being for these women.

Method

Ethical approval and informed consent

Ethics approval for our study was obtained from Departmental Research Ethics Committee of the Department of Psychology of the University of Hong Kong. Informed consent was acquired from each participant.

Participants

All 40 female offenders who underwent treatment in PSY GYM between 2014 and 2015 were recruited into our study. They had no specific treatments other than CBT or PPI. Another 35 female offenders on the waiting list were recruited as comparison women. Given the limited capacity of the PSY GYM, it was not feasible to accommodate both treatment participants and comparison participants on the same unit, so the comparison women continued to reside elsewhere in the prison. All women otherwise received TAU, which included officers and clinical psychologists providing supportive counselling to them 2–4 times per month, according to usual practice when women are on the PSY GYM waiting list. None of the comparison women received any CBT or PPI during the study period. As the comparison women had been selected as eligible for the PSY GYM, we anticipated that the severity of their psychological distress, demographic characteristics and offence type would all be similar to those of the women already in the unit.

The intervention

The CBT intervention was in two parts. In the first, participants were trained to be familiar with basic steps in CBT. In the second part, they were asked to identify dysfunctional automatic thoughts from personal problems that would trigger negative emotions, and then they were trained to apply the steps in the CBT model to counter their own dysfunctional thinking.

The PPI intervention was divided into four parts. In the first, the PPI model was introduced with mindful awareness training to heighten participants' sensitivity towards the positive elements around them. The other parts focused on hope (Snyder et al., 2000), gratitude (Emmons and Shelton, 2002) and strengths (Peterson and Seligman, 2004).

Procedures

At the outset of the intervention, the treatment participants were randomly assigned to one of two groups. In one, the women first received eight sessions of CBT, followed by eight sessions of PPI, and in the other they first received eight sessions of PPI, followed by eight sessions of CBT.

A battery of self-report measures was distributed to the participants before session 1 (Time 1), after session 8 (Time 2) and after session 16 (Time 3). Comparison between the two groups at each Time point allowed evaluation of effectiveness of the interventions compared with TAU. Comparisons between measures at Time 1 and Time 2 in the treatment group only allowed evaluation of the relative effectiveness of CBT and PPI. Comparison between Time 2 and Time 3 in the treatment group allowed us to test for a cumulative effect of the interventions (see also Figure 1).

Measures

The Depression Anxiety Stress Scale – 21 (DASS-21; Lovibond and Lovibond, 1995) is for assessing psychological distress by three 7-item subscales: (1) the Depression Subscale (DASS-21-D); (2) the Anxiety Subscale (DASS-21-A); and (3) the Stress Subscale (DASS-21-S). Each item is rated on a 4-point Likert-type scale (0 = did not apply to me at all to 4 = applied to me very much or most of the time). A higher score indicates a greater level of psychological distress. It has been translated into Chinese and the Chinese version evaluated (Chan et al., 2001). Satisfactory internal consistencies were reported (DASS- 21: $\alpha = 0.91$; DASS-21-D: $\alpha = 0.82$; DASS-21-A: $\alpha = 0.78$) in a study among university students in Hong Kong and Macau (Liu, 2010).

The Automatic Thoughts Questionnaire–Revised (ATQ-R; Kendall et al., 1989) is a 40-item scale for assessing the cognitive content associated with depressed mood, using two subscales: (1) the ATQ-Negative Subscale (ATQR_N) and (2) the ATQ-Positive Subscale (ATQR_P). Each item is rated on a 5-point Likert-type scale (1 = not at all to 5 = all the time), indicating frequency of these thoughts. A higher score indicates a greater level of depressive cognition. The Chinese version has been shown to have excellent internal consistency ($\alpha = 0.96$; Liu, 2010).

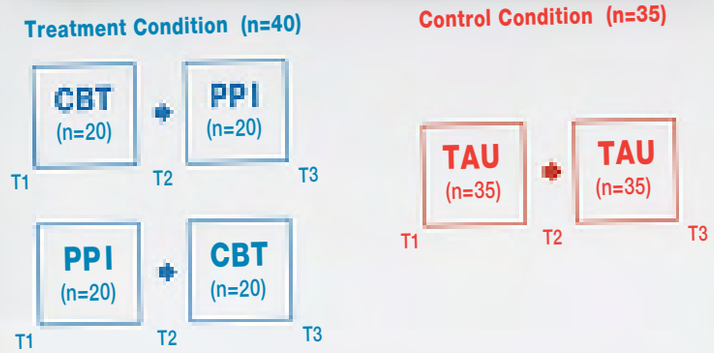


Figure 1: Design of experiment in treatment and control condition.
Note. T1 = time; T2 = time 2; T3 = time 3.

The Anxious Self-Statements Questionnaire (ASSQ; Kendall and Hollon, 1989) is a 32-item scale for assessing cognitive content associated with anxiety. Items are rated on a 5-point Likert-type scale (1 = never to 5 = all the time), indicating frequency of these thoughts. A total score is obtained by summing up the 32 items. The Chinese version, assessed among university students in Hong Kong and Macau, has good internal consistency (α = 0.97; Liu, 2010).

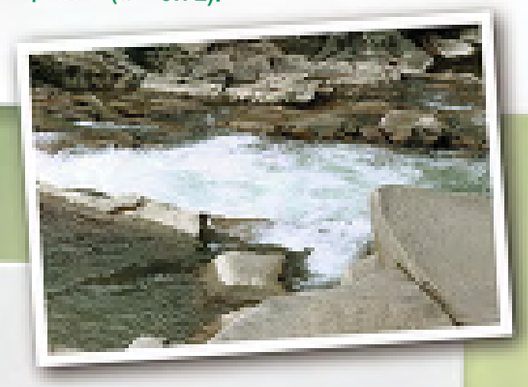
The Changes in Outlook Questionnaire – Simplified Chinese version (CiOQ-SCS; Joseph et al., 2006) is a 10-item scale for assessing positive as well as negative changes experienced following adversity. It has two subscales: (1) the CiOP-S for measuring positive changes and (2) the CiON-S for measuring negative changes. Items are rated on a six-point scale from (1) strongly disagree to (6) strongly agree. Higher scores indicate greater positive and negative changes, respectively. The CiOQ-S was translated into a simplified Chinese version (CiOQ-SCS) by Zang et al. (2012) and shown to have good internal consistency (α = 0.87 for the positive change subscale and 0.82 for the negative change subscale among Chinese earthquake survivors).

The Satisfaction With Life Scale (SWLS; Diener et al., 1985) is a 5-item scale yielding global life satisfaction judgement scores. Items are rated on a seven-point Likert-type scale (1 = very untrue of me to 7 = very true of me), with higher scores indicating more life satisfaction. The scale was translated into Chinese by Shek (1992) and shown to have a good internal consistency (α = 0.81) among Hong Kong children and adolescents (Sun and Shek, 2011).

The Gratitude Scale (GS; McCullough et al., 2002) is a 6-item scale for rating disposition towards gratitude, each item on a 6-point Likert-type scale (1 = very untrue of me to 6 = very true of me). Higher scores indicate greater tendency towards gratitude. The scale was translated and validated in Taiwan, with a good internal consistency (α = 0.80) among Taiwanese undergraduates (Chen et al., 2009).

The Hope Scale (HS; Snyder et al., 1991) is a 12-item scale made up of four agency and four pathway subscale items, mixed with four distracter items. Each item is rated on an 8-point Likert-type scale (1 = very untrue of me to 8 = very true of me), with higher scores indicating higher corresponding agency or pathway components. The Chinese version (Ho et al., 2010) has acceptable internal reliability (α = 0.70, 0.76 and 0.80 for the agency subscale and pathway subscales and total hope scale, respectively) (Ho et al., 2012).

The Brief Strength Scale (BSS-12; Ho et al., 2015) is a 12-item scale for assessing strengths, designed for use with Chinese people. It has three subscales: (1) 'temperance strength', meaning here the capacity for self-control; (2) intellectual strength; and (3) interpersonal strength. It has satisfactory content validity and discriminant validity, and the internal consistency of all three subscales is acceptable (α > 0.72).



Statistical analyses

In order to compare the treatment effectiveness of CBT, PPI and combined CBT and PPI intervention with the TAU condition, change scores were compared to reflect the treatment effects. Two change scores (referred to as GS1 and GS2) formed the dependent variables. The independent variables refer to the treatment and TAU conditions. GS1 refers to the difference between the pre- intervention scores (Time 1) and post-intervention scores at Time 2. GS2 refers to the difference between the pre-intervention scores at Time 1 and post- intervention scores at Time 3. A one-way between-groups ANOVA with planned comparisons of change scores was used. A paired-samples t-test was conducted to detect any difference in change scores between eight-session individual treatment (T2) and 16-session combined treatment conditions (T3).

Results

Demographic data and baseline characteristics

All the participants completed the programme without drop-out. There was no significant difference in baseline demographic or clinical variables between either treatment or TAU groups, or between CBT and PPI starter groups (Table 1).

Table 1

Demographic characteristics of participants

	CBT groups (n = 19)	PPI group (n = 21)	Control group (n = 35)
Age, years (mean, SD)	34.84 (10.21)	37.24 (8.54)	37.74 (7.82)
Length of present sentence, month	69.58 (43.46)	78.95 (40.53)	62.69 (45.65)
Marital status	n (%)	n (%)	n (%)
Married/cohabiting	5 (26.32)	5 (23.81)	10 (28.57)
Divorced	2 (10.53)	5 (23.81)	9 (25.71)
Single	12 (63.16)	11 (52.38)	15 (42.86)
Widowed	0 (0)	0 (0)	1 (2.86)
With children	11 (57.89)	9 (42.86)	22 (62.86)
Education	n (%)	n (%)	n (%)
Primary level	1 (5.26)	1 (4.76)	3 (8.57)
Secondary level	15 (78.95)	18 (85.71)	30 (85.71)
Above secondary level	3 (15.79)	2 (9.52)	2 (5.71)
Conviction			
First conviction	12 (63.16)	10 (47.62)	10 (28.57)
Second or more	7 (36.84)	11 (52.38)	25 (71.43)
Employment before prison sentence			
Employed	8 (42.11)	7 (33.33)	11 (31.43)
Not employed	11 (57.89)	14 (66.67)	24 (68.57)
Offence type			
Violent crime	2 (10.53)	1 (4.76)	1 (2.86)
Burglary and theft	2 (10.53)	0 (0)	3 (8.57)
Fraud and forgery	6 (31.58)	3 (14.29)	6 (17.14)
Sexual offences	0 (0)	1 (4.76)	1 (2.86)
Serious drug offences	9 (47.37)	16 (76.19)	24 (6.86)

NB. There is no statistical significant difference in demographic variable ($p > 0.05$) for three conditions.

Comparison between cognitive-behavioural therapy or positive psychological intervention alone and treatment as usual

There were statistically significant differences at the $p < 0.05$ level in all measures between either of the two treatment conditions and TAU (see Table 2, Figures 2 and 3). The only significant differences between the CBT and PPI starter groups were in ATQR-P scores and the agency subscale of HS. Further, as shown in Figures 2 and 3, the TAU condition change scores were moving in the opposite direction to those in the treatment conditions, although this apparent deterioration without the intervention was not significant.

Comparison between combined treatment condition and treatment as usual

The combined treatment condition also yielded significant improvement in all scale scores at the $p < 0.05$ level.

Table 2

Analysis of variance with a planned comparison for the difference of average gain scores between individual treatment group and control group

	M(SD)				
	CBT group n = 19	PPI group n = 21	Control group n = 35	F-value	Effect size
DASS-21					
DASS-21-D	-5.05 (9.56)	-8.76 (11.81)	.23 (5.65)	12.39**	.15
DASS-21-A	-5.05 (7.78)	-4.67 (10.65)	2.69 (5.68)	17.14***	.19
DASS-21-S	-8.11 (6.31)	-8.00 (10.47)	.97 (6.52)	25.13***	.26
Total	-18.21 (20.94)	-21.43 (30.37)	3.89 (14.96)	22.22***	.23
ATQR					
ATQR-P	.11 (4.95)	5.57 (7.21)	-.29 (4.76)	5.82*	.07
ATQR-N	-15.00 (21.17)	-17.81 (23.28)	4.40 (14.57)	22.23***	.23
ASSQ	-12.21 (19.93)	-21.62 (27.51)	.91 (22.29)	10.89**	.13
CiOQ-SCS					
CiOP-SCS	1.11 (5.00)	3.57 (4.47)	-2.29 (5.73)	14.60***	.17
CiON-SCS	-5.16 (5.63)	-5.67 (5.15)	.14 (7.14)	14.63***	.17
SWLS	3.16 (6.15)	3.10 (4.72)	-1.26 (4.46)	14.33***	.16
HS					
Pathway	2.74 (5.68)	4.95 (7.52)	-1.57 (5.70)	13.99***	.16
Agency	1.74 (5.19)	5.33 (5.95)	.06 (4.20)	9.05**	.11
Total	4.47 (10.05)	10.29 (12.58)	-1.51 (9.00)	13.73***	.16
GQ	2.53 (4.67)	4.48 (4.64)	-1.97 (3.81)	30.53***	.29
BSS-12					
Interpersonal	.58 (2.65)	1.76 (4.35)	-.29 (3.77)	2.88	.04
Temperance	1.16 (4.61)	2.38 (4.93)	.09 (4.49)	2.45	.03
Intellectual	.95 (3.89)	2.90 (5.10)	-1.29 (3.66)	11.10**	.13
Total	2.68 (8.65)	7.05 (11.95)	-1.49 (8.97)	7.81**	.10

Note. DASS-21 = Depression Anxiety and Stress Scale (21 items); DASS-21-D = Depression subscale (seven items); DASS-21-A = Anxiety subscale (seven item); DASS-21-S = Stress subscale (seven items); ATQR = Automatic Thoughts Questionnaire — Revised (40 items); ATOR-P = Positive Subscale of ATQR (10 items); ATQR-N = Negative Subscale of ATQR (30 items); ASSQ = Anxious Self-Statements Questionnaire (32 items); CiOQ-SCS = The Changes in Outlook Questionnaire — Simplified Chinese version (10 items); CiOQ-SCS = Positive Subscale of CiOQ-SCS; CiON-SCS = Negative Subscale of CiOQ-SCS; SWLS = Satisfaction With Life Scale (five items); HS = Hope Scale (12 items); Pathway = Pathway Subscale (four items); Agency = Agency Subscale (four items); GQ = Gratitude Questionnaire (six items); BSS-12 = Brief Strengths Scale (12 items); Interpersonal = Interpersonal Strength Subscale (four items); Temperance = Temperance Strength Subscale (four items); Intellectual = Intellectual Strength Subscale (four items).

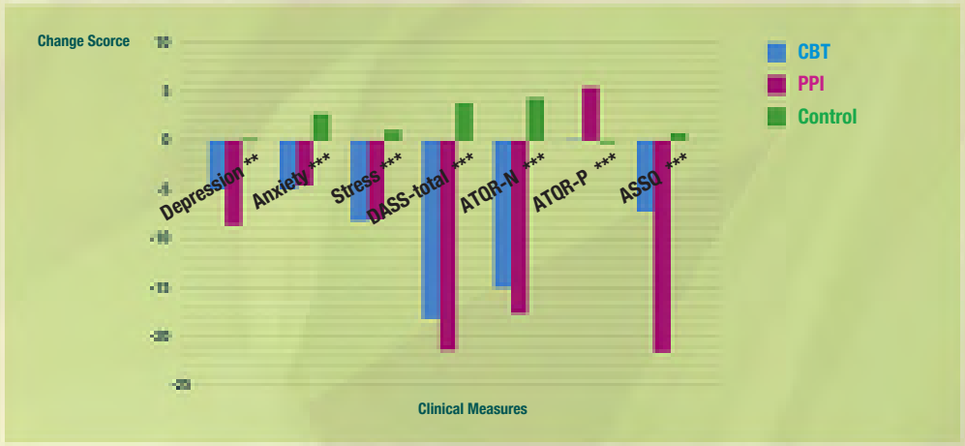


Figure 2: Change score (GS1) in psychological distress, as revealed in different measures after attending CBT, PPI and control conditions. Note. DASS-21 = Depression Anxiety and Stress Scale (21 items); DASS-21-D = Depression subscale (seven items); DASS-21-A = Anxiety subscale (seven items); DASS-21-S = Stress subscale (seven items); ATQR = Automatic Thoughts Questionnaire – Revised (40 items); ATQR-P = Positive Subscale of ATQR (10 items); ATQR- N = Negative Subscale of ATQR (30 items); ASSQ = Anxious Self-Statements Questionnaire (32 items); CiOQ-SCS = The Changes in Outlook Questionnaire – Simplified Chinese version (10 items); CiOP-SCS = Positive Subscale of CiOQ-SCS; CiON-SCS = Negative Subscale of CiOQ-SCS; SWLS = Satisfaction With Life Scale (five items); HS = Hope Scale (12 items); Pathway = Pathway Subscale (four items); Agency = Agency Subscale (four items); GQ = Gratitude Questionnaire (six items); BSS-12 = Brief Strengths Scale (12 items); Interpersonal = Interpersonal Strength Subscale (four items); Temperance = Temperance Strength Subscale (four items); Intellectual = Intellectual Strength Subscale (four items). For analysis of variance with a planned comparison for the difference of average gain scores between individual treatment condition and control condition. * $p < .05$ ** $p < .01$ *** $p < .001$ (two-tailed). [Colour figure can be viewed at wileyonlinelibrary.com]

The contrast tests indicated that there was no order effect for whether participants started with CBT or PPI.

Comparison between single and combined treatment conditions

There were significant differences in four measures favouring combined CBT and PPI interventions over either separately (ATQR-P, SWLS, BSS-12 and HS).

Discussion

Our findings show a clear advantage for psychological interventions with women in prison over TAU, providing minimal support. Differences between eight sessions of CBT and eight sessions of PPI were small, but CBT appeared not only to alleviate distress but also build strengths while PPI appeared not only to enhance psychological well-being but also to reduce psychological distress significantly. A longer course of treatment in which women received both forms of intervention had advantages over either separately.

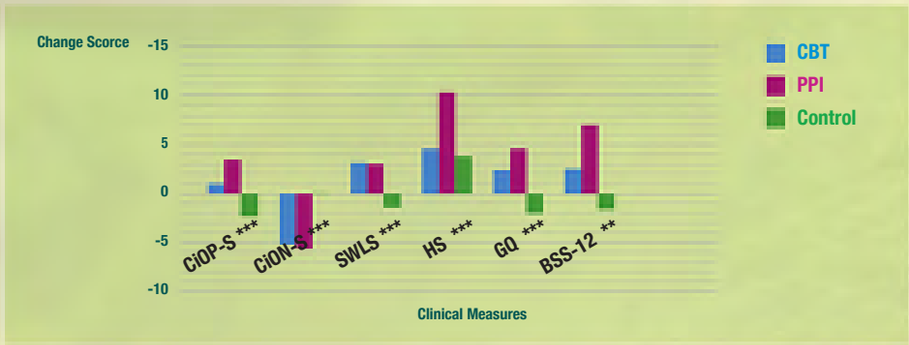


Figure 3: Change score (GS1) in psychological well-being, as revealed in different measures after attending CBT-first, PPI-first and control conditions. Note. DASS-21 = Depression Anxiety and Stress Scale (21 items); DASS-21-D = Depression subscale (seven items); DASS-21-A = Anxiety subscale (seven items); DASS-21-S = Stress subscale (seven items); ATQR = Automatic Thoughts Questionnaire – Revised (40 items); ATQR-P = Positive Subscale of ATQR (10 items); ATQR- N = Negative Subscale of ATQR (30 items); ASSQ = Anxious Self-Statements Questionnaire (32 items); CiOQ-SCS = The Changes in Outlook Questionnaire – Simplified Chinese version (10 items); CiOP-SCS = Positive Subscale of CiOQ-SCS; CiON-SCS = Negative Subscale of CiOQ-SCS; SWLS = Satisfaction With Life Scale (five items); HS = Hope Scale (12 items); Pathway = Pathway Subscale (four items); Agency = Agency Subscale (four items); GQ = Gratitude Questionnaire (six items); BSS-12 = Brief Strengths Scale (12 items); Interpersonal = Interpersonal Strength Subscale (four items); Temperance = Temperance Strength Subscale (four items); Intellectual = Intellectual Strength Subscale (four items). For analysis of variance with a planned comparison for the difference of average gain scores between individual treatment condition and control condition. * $p < .05$ ** $p < .01$ *** $p < .001$ (two-tailed). [Colour figure can be viewed at wileyonlinelibrary.com]

The nature of the sample

The participants in our study suffered from psychological distress varying from medium to high in intensity and were thus not completely homogenous in their presentation, but the effect of CBT and PPI was positive. If indeed the programme protocol we used (Barlow et al., 2004) can be used with women with varying intensities of emotional problems and/or comorbid problems, then there is potential for saving service delivery costs as there is no need to assess and plan for complex variations in interventions.

The 100% completion rate may seem surprising but probably relates to the fact that prison life is rather monotonous and under-stimulating, so the programme provides interest.

Comparison between cognitive-behavioural therapy (CBT) and positive psychological intervention (PPI)

In this study, the finding that there were few significant differences in outcomes in relation to receiving CBT or PPI is useful and also a novel finding as there is no prior research on clinical applications of PPI in prisons. This result was somewhat surprising as it challenges the presumption that CBT and PPI have different treatment specificities. Cognitive-behavioural therapy is a problem- focused intervention for alleviating immediate symptoms through change in thinking about problems, strengths and weaknesses (Beck, 1976; Lazarus and Smith, 1988; Ellis, 2001). By contrast, PPI specialises in promoting psychological well-being through enhancement of hope, gratitude and strength, etc. (Seligman et al., 2005; Ho et al., 2012, 2015). As each may alleviate symptoms and enhance well-being, there is a possibility of a 'transtheoretical' mechanism underlying them. This means that the treatment effect is not limited by a specific theory, and that the two approaches may share common factors in the underlying mechanism.

The effect of combined treatment condition

When comparing the combined treatment with either of the treatments, the results showed that **the combined treatment added additional values on life satisfaction, hopeful style of thinking, self-perceived strengths and positive cognition in the context of depression.** There are three possible explanations for this finding. The effect of the combined treatment might derive from (1) a real advantage of combining these two treatment approaches – CBT and PPI; (2) simply a longer period of treatment; or (3) the possibility simply that full effects from the first eight sessions of treatment are delayed, lending spurious value to adding further treatment. We are unable to distinguish between these possibilities using the data from this exploratory study, but future study designs should take account of these possibilities. The only observation we can make is that the combined treatment added value mainly on the variables of psychological well-being. This may indicate that reduction in symptoms constitutes the first step of treatment, and enhancement of psychological well- being the second. It does appear, however, that the longer period and combination of CBT and PPI may be optimal for this group of female offenders.

Limitations and implications for future study

There are several limitations to our study. First, the sample size is small. Second, we were only able to randomise within the treatment conditions and not between treatment and waiting list, which would have been ideal. Nevertheless, we found little difference at least in the characteristics of the participants across conditions.

Owing to a language barrier, only local offenders could be recruited into this study. This also meant that the participants were culturally rather homogenous, so our results cannot necessarily be generalised to other countries and cultures. To cater for the needs of female offenders with other nationalities, the latest development in PSY GYM included a trial run for an English version of the programmes. In future, replication of this study with offenders with other nationalities and in other countries is recommended.

We were not able to extend the study into any follow-up period, so we cannot know how long the treatment effects will last. A follow-up study at 6-month and 1-year intervals is recommended to test out its maintenance effect. More than three-quarters of these women have now left prison, and, after an approximate average of 20 months in the community, the recidivism rate is zero. It is important to acknowledge, however, that the primary task of the interventions was to improve mental health and well being. On the one hand, this is worthwhile in itself, regardless of reoffending, and on the other, any relationship between mental health/wellbeing and re-offending is unclear. This too could benefit from further study.

Conclusions

Our study presents findings from an evaluation of an innovative treatment approach in correctional settings and represents a pioneer attempt to test the effects of both CBT and PPI with women in prison in Hong Kong. While considerable work has been performed in the West with respect to the effectiveness of CBT with offenders, most has been with male offenders, so our study fills both a local and international gap in knowledge. The encouraging results suggest that a full randomised and ideally multi-centre randomised trial would be worthwhile to pave the way for improved outcomes for a very distressed and hard to treat group of women.

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