Effect of an advocacy intervention on mental health in Chinese women survivors of intimate partner violence. A randomized controlled trial

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Abstract

Context Intimate partner violence against women can have negative mental health consequences for survivors. The effect of interventions designed to improve the survivors' depressive symptoms is unclear.

Objective To determine whether an advocacy intervention would improve the depressive symptoms of Chinese women survivors of intimate partner violence.

Design, Setting, and Participants Assessor-blind, randomized controlled trial of 200 Chinese women aged 18 years or older with a history of intimate partner violence was conducted from February 2007 to June 2009 in a community in Hong Kong, China. Participants were randomly assigned to an intervention or control group.

Intervention The intervention group (n=100) received a 12-week advocacy intervention comprising empowerment and telephone social support. The control group (n=100) received usual community services including child care, health care and promotion, and recreational programs.

Main Outcome Measures The primary outcome was change in depressive symptoms (Chinese Version of Beck Depression Inventory II) between baseline and 9 months. The minimal clinically important difference was 5 units. Secondary outcomes were changes in intimate partner violence (Chinese Revised Conflict Tactics Scales), health-related quality of life (Short Form Health 12 Survey) and perceived social support (Interpersonal Support Evaluation List) between baseline and 9 months. The usefulness of the intervention/usual community services was evaluated at 9 months.

Results At 3 months, the mean change of depressive symptoms was 11.6 (95% confidence interval [CI], 9.5-13.7) in the control group and 14.9 (95% CI, 12.4-17.5) in the intervention group. The respective mean changes at 9 months were 19.6 (95% CI, 16.6-22.7) and 23.2 (95% CI, 20.4-26.0). The intervention effects at 3 and 9 months

were not significantly different (*P*=.86). The intervention significantly reduced depressive symptoms over the control by 2.66 (95%, 0.26-5.06; *P*=.03) which was less than the minimal clinically important difference. Among the secondary outcomes, statistically significant improvement was found in psychological aggression (-1.87; 95% CI = -3.34, -0.40; 3 months: mean change from baseline = 1.5 [95% CI, -1.0 to 3.9] in the control group and 0.3 [95% CI, -0.7 to 1.4] in the intervention group; 9 months: mean change from baseline = -6.4 [95% CI, -7.8 to -5.0] in the control group and -8.9 [95% CI, -10.6 to -7.2] in the intervention group) and perceived social support (2.18; 95% CI = 0.48 to 3.89; 3 months: mean change from baseline = 6.4 [95% CI, 4.9-7.8] in the control group and 9.2 [95% CI, 7.7-10.8] in the intervention group; 9 months: mean change from baseline = 12.4 [95% CI, 10.5-14.3] in the control group and 14.4 [95% CI, 12.7-16.1] in the intervention group) but not in physical assault, sexual coercion, and health-related quality of life. By the end of the study, more women in the intervention group found the intervention to be useful-extremely useful in improving their intimate relationships vs those in the control group with regard to the usual community services (93.8% vs 81.7%; 95% CI, 2.1%-22.0%; *P*=.02) and in helping them to resolve conflicts with their intimate partners (97.5% vs 84.1%; 95% CI, 4.7%-22.0%; *p*=.001).

Conclusion Among community-dwelling abused Chinese women, use of an advocacy intervention did not result in a clinically meaningful improvement in depressive symptoms.

Trial Registration Clinicaltrials.gov Identifier: NCT01054898

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Intimate partner violence (IPV) is prevalent across cultures.[1] For example, in Hong Kong, where the prevailing Chinese culture is supposed to emphasize social harmony, the past-year prevalence of physical violence against women by an intimate partner is reported to range from 4.5% to 10%.[2-3] Depression is one of the most common mental health sequelae of IPV. A meta-analysis of 18 studies has found a weighted mean prevalence of depression of 47.6% among abused women,[4] which is much higher than the lifetime rates of between 10.2% and 21.3% found in the general US female population.[5-6] Abused women's ability to take care of themselves was found to be a protective factor for depression.[7] Advocacy interventions aim to enhance abused women's self-care by helping them to make sense of the situation, identify potential solutions and achieve the goals that they have set.[8] A recent systematic review of randomized controlled trials of advocacy programs for abused women has found limited evidence that a one-off session of advocacy may help Chinese pregnant abused women to suffer less post-natal depression.[9] Therefore, we conducted an assessor-blind, randomized controlled trial to assess the effect of a 12-week advocacy intervention on depressive symptoms, intimate partner violence, perceived social support and health-related quality of life in community-dwelling Chinese women survivors of IPV during a period of 9 months.

METHODS

The trial was conducted from February 2007 to June 2009 at a community center in Hong Kong. The study was approved by the Institutional Review Board of the

University of Hong Kong/Hospital Authority Hong Kong West Cluster. The community center serves three districts in Hong Kong and covers a population of about 800,000.[10] The center, which has been established since 1973 and with outreach sites throughout the districts, provides a range of social, health, child care, educational and recreational services for users of all age groups.

Study Participants

Community-dwelling Chinese women were eligible if they resided or worked in one of the districts covered by the community center, were screened positive for IPV (using the Chinese Abuse Assessment Screen) and aged 18 years or older. Women were excluded from the study if they could not communicate in Cantonese or Putonghua, the two main dialects in Hong Kong which were used in this study for administering the intervention and collecting data.

Sample size calculation was based on a primary comparison of the changes in depressive symptom scores measured using Beck Depression Inventory version II between women receiving an empowerment intervention and women receiving usual community services. With reference to a previous study of 110 abused women,[11] the standard deviation for the change in depressive symptom scores was taken as 12. Also, the intervention had to reduce the depressive symptom scores by at least five units more than the usual community services before it was considered to be clinically effective.[12] In order to have a maximum of 5% false positive error rate and 80% power by a two-tailed t-test, we needed 92 women per group. Anticipating a small attrition rate of 8%, 200 women were required.

Intervention

The intervention employed for this study is classified as a less intensive advocacy intervention (an intervention of not more than 12 hours in total) that aims to directly help abused women through the provision of advocacy.[9] The active ingredient of advocacy in the intervention is demonstrated by our trained research assistants (registered social workers) who, acting as advocates, sought to engage with individual abused women in order to empower them and link them to community services, with ongoing support and/or informal counselling as required.

The intervention consists of two components: empowerment and telephone social support. The empowerment component includes protection and enhanced choice making and problem solving, both of which are derived from Dutton's empowerment model.[13] Previously, Parker and colleagues incorporated an empowerment component in their Abuse Prevention Protocol.[14]The same protocol was modified for use in this study. In relation to protection, the aim is to increase women's safety through recognition of increased danger and a safety plan that is developed for individual use. In relation to enhanced choice making and problem solving, the aim is to provide information to women about cycles of violence, facts and options, legal protection orders, filing for criminal charges, and community resources for abused women so that they can make decisions about relationships, relocation and other transitional issues. The empowerment component of the intervention, which took about 30 minutes to deliver, was provided once in a one-to-one interview conducted in a room (in the center or one of the outreach sites) by a designated research assistant at the beginning of the 12-week intervention. At the end of the interview, each of the women was given an empowerment pamphlet to reinforce the information provided.

The social support component, based on Cohen's Social Support Theory,[15] consisted of 12 scheduled weekly telephone calls (initiated by the designated research assistant) and 24-hour access to a hotline for the study participants for additional social support. According to Social Support Theory, tangible and perceived social support provided by social relationships may promote health and well-being.

In this study, the weekly telephone calls were designed to remind the women of the availability of help. The focus of the calls was on their needs and/or the stressors that they might be facing. Since each woman had her own needs and stressors, the conversation was kept informal and flexible and no set plan was made for the kind of social support to be delivered during each call. To ensure consistency in the responses to expressed needs or stressors, a protocol listing the possible responses was made available to the research assistants providing the telephone social support. For example, if a woman revealed that she was being abused by her partner, the research assistant making the call would help her develop a safety plan or review the one already developed. She would be encouraged to revisit the information in the empowerment pamphlet and identify what might assist her to solve the present problem. The possibility of calling a shelter or a local support group for abused women could also be discussed with the woman. Similar responses in relation to parenting concerns, financial hardship, health problems and family conflict were also listed in the protocol.

Recognizing that Chinese women may be reluctant to seek help from outsiders, we ensured that the research assistants providing the telephone social support were (1) selected for their skills in handling crises for Chinese families; (2) introduced themselves to the women as someone from the neighbourhood community center; (3) would follow the same woman through the 12 weekly telephone calls; and (4) would receive training and be certified as competent to provide telephone social support as per protocol.

In addition to the advocacy intervention, women in the intervention group were also free to choose and receive the usual care services offered by the community center or its outreach sites including child care (e.g., crèche, after-school tutorial/interest groups), health care and promotion (e.g., Chinese Medicine clinics, dental services, health promotion programs), and recreational facilities (e.g., gymnasium, classes for various interest groups such as pottery, painting, drama, cookery).

Intervention fidelity

To ensure intervention fidelity, research assistants who provided the intervention underwent training provided by two of the investigators (AT and KHY). Training, which was conducted over several sessions totalling 5 days, included how to institute the intervention in a culturally appropriate, empathetic manner based on the empowerment and social support protocols as described earlier. In addition, across the length of the study, 15% of the telephone logs including the needs expressed and the responses provided were randomly checked for adherence to the protocol. If adherence dropped below 90%, re-training and observation would result until a return to greater than 90% adherence was achieved. The random checks revealed that adherence did not drop below 90%.

Control

The usual community services provided by the community center or its outreach sites as described above were offered to women in the control group who would decide on the uptake of the services according to their own needs. Although the services were supportive in nature, they were not designed with abused women in mind. At the time of

the study, there was no provision of standard care for abused women in the community except crisis intervention for severely abused women.

The control group only received usual community services. As the advocacy intervention (empowerment and telephone social support) was not a standard community and had to be provided by our research staff, it was possible for us to ensure that the services designated for the intervention group were not provided to the control group. During our weekly monitoring of the intervention services provided, we did not find that any of the control participants had tried to use formal or informal channels or relationships to get access to these services.

Study Instruments

For the primary outcome:

The Chinese version of the Beck Depression Inventory-II (C-BDI-II)[16] was used for the assessment of depressive symptoms in the previous two weeks. The C-BDI-II is a 21-item scale with established construct validity and reliability for depressive symptoms.[16] The alpha coefficient for the C-BDI-II in this study was 0.96. Scores may range from 0 – 63, with 0 – 13 indicating minimal depression, 14 – 19 mild depression, 20 – 28 moderate depression, and 29 – 63 severe depression.

For the secondary outcomes:

The Chinese Abuse Assessment Screen (C-AAS),[17] a 5-item instrument designed to determine abuse status and perpetrator within a defined period, was used to screen potential subjects for IPV. If the woman answered 'yes' to being emotionally, physically or sexually abused within the past year and if the perpetrator was her former or current

intimate partner, she was screened positive for IPV. The C-AAS has demonstrated satisfactory accuracy and utility for identifying IPV. [17]

The Chinese version of the Revised Conflict Tactics Scales (C-CTS2)[2] was used to measure the type and frequency of behaviors used by the perpetrator during partner conflict. The C-CTS2 has been validated in a representative household study of IPV in Hong Kong with satisfactory validity and reliability.[2] Of the 27-item C-CTS2, 8 measure psychological aggression, 12 measure physical assault, and 7 measure sexual coercion. There is a 7-point scale for each of the items indicating how often the behavior occurred (0 = never, 1 = once, 2 = twice, 3 = 3–5 times, 4 = 6–10 times, 5 = 11–20 times and 6 = 20 or more times).

The Short Form Health Survey (SF-12)[18] is an abbreviated form of the medical outcomes study 36-item Short Form Health Survey which is designed to assess health-related quality of life. The SF-12 has demonstrated that it is valid and equivalent for Chinese population.[19] The SF-12 consists of 12 items grouped under the Physical Component Summary (PCS) and Mental Component Summary (MCS) scales. The mean score of the SF-12 for the general population is 50. When the mean score is below 50, health status is below average.

Perceptions of social support were assessed using the 12-item Interpersonal Support Evaluation List (ISEL),[20] which uses a 4-point scale for each of the statements to indicate whether they may or may not be true (0 = definitely false, 1 = probably false, 2 = probably true, and 3 = definitely true). The ISEL has demonstrated satisfactory validity and reliability.[21] In this study, the overall alpha coefficient was .91 for the ISEL.

Usefulness of the advocacy intervention or usual community services was assessed using two investigator-designed questions: "To what extent has/have the intervention/community services helped you to improve the relationship with your

partner?" and "To what extent has/have the intervention/community services helped you resolve conflicts between you and your partner?" A 4-point scale was used to indicate usefulness, where 4 = extremely useful, 3 = useful, 2 = a little useful, and 1 = not useful.

A demographic questionnaire (DQ) was included to collect information on age, education levels, place of birth, number of years living in Hong Kong, marital status, number of children, chronic illness, employment status, financial hardship, receiving comprehensive social security assistance, and whether in need of financial support.

Recruitment and Consent

Participation was solicited through several means including notices posted in the host community center or at community fairs organized by the center, through announcements in the community center's newsletters, and personal invitations to mothers of children attending local kindergartens or schools. The recruitment notices did not mention that IPV was a criterion for participating in our study. Rather, potential participants were informed that our study aimed to investigate experiences of women in the community and to evaluate services provided by the community center.

In a private room and on her own, each potential participant was invited to participate in the study after an explanation of the study's purpose, potential risks and benefits, instruments, administration time and follow-up schedules was provided by a research assistant. If she agreed to participate, a signed written consent would be obtained. Screening for IPV was conducted using the C-AAS. Those screened negative were thanked for their participation and no further contact was made. Those identified as abused and whose perpetrators were intimate partners were enrolled into the study.

Randomization and Blinding

Participants were randomized (1:1) to the intervention or control group according to a list of random permutations prepared by blocked randomization generated by computer, which was performed by a research staff member who had not been involved in subject recruitment. The block size was kept securely by the randomizer and the order of allocation was centrally controlled to avoid any bias in selection. The allocation sequence was concealed in opaque envelopes. At the time of randomization, the research assistant who had successfully recruited a participant called the site investigator who would then open the envelope containing the group assignment. No detail was provided to the site investigator about the identity of the participant to ensure random assignment.

The study was blinded for the assessors who were not involved in the design of the study, did not know the study hypotheses and were blind to the group assignment.

Data Collection

The C-BDI-II, C-CTS2, SF-12 and ISEL were administered to participants in both groups at three time points: (i) baseline = on entry to the study after randomization but before the intervention; (ii) 3-month follow-up = at 3 months after enrolment (that is, on completion of the 12-week intervention/usual community services); and (iii) 9-month follow-up = at 9 months after enrolment (that is, 6 months post-intervention). The DQ was administered at entry only and the usefulness of the advocacy intervention/usual community services was evaluated at the end of the 9-month follow-up interview.

Baseline data collection was conducted during individual, face-to-face interviews. Subsequent data were collected by telephone. Also, to ensure that it was safe for the women to speak on the telephone, a preferred time for calling was established

beforehand and a code was worked out in advance to indicate that the abuser was not present.

On completion of the study, the telephone logs of all 100 women in the intervention group were examined for (i) completion rates of the 12-week telephone social support; and (ii) the needs expressed by the women.

Tracking strategies

Systematic field tracking strategies were instituted to ensure high retention rate. The strategies modeled on the systemized tracking methodology previously used by McFarlane and colleagues to achieve high retention.[22] Our previous trial[23] involving highly mobile study participants in Hong Kong also informed us about how to keep track of the participants in the present study. At intake, the woman's safe contact information and that of an alternate contact person nominated by her were obtained. The latter would be contacted if a woman's telephone number changed. If telephone contacts with the woman failed, we would access the computerized records of the community center for more up-to-date records (required for using child care, health or recreational services). Field tracking of the woman was recorded on a pre-planned sheet with weekly records on when, how and how often the contacts were made and the outcomes and follow-up actions as appropriate. The records were monitored weekly by the site investigator (PP) and discussed during the monthly research meetings (AT, KHY, PP) with more intensive tracking if necessary.

Referrals

There was a pre-planned procedure for referring study participants (i) whose BDI-II scores were at the severe level (29-63); or (ii) who answered "yes" to BDI9 (I would like

to kill myself / I would kill myself if I had the chance); or (iii) who answered "yes to any of the CTS-II severe physical assault items (2f-2l) or severe sexual coercion items (3d-3g). The research staff who had received training in the administration of the study instruments would report such findings immediately to the site investigator (PP, an experienced social worker in charge of the family services unit in the center) who would, in the first instance, decide if and what referral would be needed before contacting the principal investigator (AT) about her decision.

Statistical Analysis

Statistical analysis was conducted using the Statistical Analysis System (SAS) Version 9.2 (SAS Institute Inc, Cary NC). Baseline comparisons between the intervention and control groups were performed by the likelihood ratio chi-square test and Mann-Whitney U test for categorical and continuous characteristics respectively. Their exact p-values were approximated by Monte Carlo simulation of size 500. The intervention effects on depressive symptoms, perceived social support, health-related quality of life, and IPV were examined by a linear mixed effects model that took into account the extra covariance between repeated measurements taken at baseline, 3 months and 9 months. Specifically, the intercept was taken as random and the baseline value, study group, and time of measurement were taken as covariates. Whether the intervention effect at 3 months was maintained at 9 months was first examined by incorporating the group by time interaction. As there was no evidence of a change of intervention effect on depressive symptoms, perceived social support and health-related quality of life, the overall effect of the intervention between 3 and 9 months was estimated. The random effects as well as the residuals were checked for the adequacy of normality and potential outliers. One outlier was identified in the control group and the analysis was repeated

after its removal and adjustment of any baseline differences made. Moreover, the analysis was again repeated after the removal of the 5 participants (4 in the intervention group and 1 in the control group) who received counselling. There were essentially no differences in the conclusions after these repeated analyses, thus, results obtained from all participants were reported. There were no missing values or dropouts and the analysis was consistent with the intention to treat principle. All significance tests were 2-sided and used a 5% level of significance.

RESULTS

Of the 1753 women assessed for eligibility, 202 (11.5%) were identified as survivors of IPV. Two declined to participate and the remaining 200 women who consented were randomized to either the control or the intervention group. There was no loss to follow up and all 200 women were included in the data analysis (Fig. 1).

The telephone logs revealed that 88% of the women in the intervention group received all 12 weeks of the telephone support intervention while 7% and 5% received 11 and 10 weeks of the intervention, respectively. No one received less than 10 weeks of the telephone support intervention. The duration of each of the telephone calls was between 15 and 20 minutes. Most of the expressed needs were related to parenting, with the women seeking help/advice in relation to their children not achieving high marks in tests/examinations, not interested in their studies/homework, or not understanding what was being taught in English subjects. The women rarely talked about problems with their partners despite their being in abusive intimate relationships.

The demographic characteristics of the women according to study group are shown in Table 1. At baseline, the intervention and control groups were comparable on

all but one of the demographics. Specifically, significantly more women in the intervention group (33%) were receiving comprehensive social security assistance (CSSA) than those in the control group (9%) ($p<0.001$). All but 3 of the women in the study continued to stay with their partners throughout the study. Also, with the exception of 2 women who were already under the care of social workers, none of those in this study had previously disclosed their IPV to or sought help from social or health services professionals.

Table 2 shows the study outcomes at baseline and after intervention. At baseline, there were no significant differences between the groups on all outcomes. With mean C-BDI-II scores of > 29, severe levels of depression were indicated for both groups. The MCS scale scores for the SF-12, at less than 50 for both groups, were also below the mean for the general population.

Depressive symptoms in the control group was reduced from baseline on average by 11.6 (95% confidence interval [CI], 9.5 to 13.7) at 3 months and 19.6 (95% CI, 16.6 to 22.7) at 9 months while that in the intervention group was by 14.9 (95% CI, 12.4 to 17.5) at 3 months and 23.2 (95% CI, 20.4 to 26.0) at 9 months. After adjusting the baseline values, the intervention effects on the changes at 3 and 9 months did not significantly differ (P=.86). The intervention group reduced depressive symptoms by 2.66 (95% CI, 0.26 to 5.06; *P*=.03) more than the control group during 3 to 9 months after adjusting for the baseline values. The effects did not differ after adjusting for the baseline differences in CSSA and/or removal of the outlier.

In the control group, the mean change of psychological aggression from baseline was 1.5 (95% CI, -1.0 to 3.9) at 3 months and -6.4 (95% CI, -7.8 to -5.0) at 9 months. In the intervention group, the respective changes were 0.3 (95% CI, -0.7 to 1.4) and -8.9 (95% CI, -10.6 to -7.2). Again, the adjusted intervention effect did not significantly

differ between 3 and 9 months (P=.19). The intervention group significantly reduced psychological aggression more than the control group, after adjusting for the baseline difference, by 1.87 (95% CI, 0.40 to 3.34; P=.01). However, the between-group differences for physical assault and sexual coercion were not significant during the same period.

The mean changes of the two SF-12 components from baseline in the control group were -0.9 (95% CI, -2.0 to 0.2) for PCS and 7.8 (95% CI, 6.1 to 9.6) for MCS at 3 months; and 0.3 (95% CI, -1.0 to 1.6) for PCS and 11.3 (95% CI, 9.5 to 13.1) at 9 months. The respective changes in the intervention group were -1.0 (95% CI, -1.9 to 0.03) for PCS and 9.4 (95% CI, 7.5 to 11.2) for MCS at 3 months; and 1.0 (95% CI, -0.2 to 2.3) for PCS and 12.8 (95% CI, 10.9 to 14.7) for MCS at 9 months. However, the between-group differences for SF-12 scores were not significant during 3-month to 9-month after adjusting for the baseline difference.

The mean changes of the ISEL from baseline to 3 and 9 months were 6.4 (95% CI, 4.9 to 7.8) and 12.4 (95% CI, 10.5 to 14.3) respectively in the control group, and 9.2 (95% CI, 7.7 to 10.8) and 14.4 (95% CI, 12.7 to 16.1) respectively in the intervention group. The between-group difference of the change at 3 months did not differ significantly from that at 9 months (P=.37). During 3-month to 9-month, ISEL scores increased significantly in the intervention group compared to the control group, after adjusting for the baseline difference, by 2.18 (95% CI, 0.48 to 3.89; P<.01).

Significantly more women in the intervention group found the intervention to be useful to extremely useful in improving their intimate relationships compared to those in the control group (93.8% vs 81.7%; 95% CI for the difference, 2.1% to 22.0%; P =.015) and in helping them resolve conflicts with their intimate partners (97.5% vs 84.1%; 95% CI for the difference, 4.7% to 22.0%; P=.001).

There was no report of adverse events as a result of the women participating in this study. Blinding appeared to be sustained as none of the assessors knew the group assignment of the participants until they came to the last question which solicited the participants' evaluation of the intervention/usual community services.

Five of the participants met one or more of the condition(s) for referral (with four in the intervention group). All agreed to be referred to social services for counselling but none of them accepted our offer to refer them to diagnostic assessment. We were not aware that any of the participants had received treatment for depression without being referred by us.

COMMENT

This report describes a randomized controlled trial of an advocacy intervention in a group of community-dwelling abused Chinese women. This is the first study to examine the effectiveness of an advocacy intervention for abused Chinese women in a community setting. We found that the trial resulted in a change of about 3 units in the C-BDI-II score for the intervention group compared with the control group, which was less than the change of at least 5 units before the improvement would be considered clinically meaningful. Thus, the intervention did not result in a clinically meaningful improvement in depressive symptoms.

In a recent review of trials of advocacy intervention for abused women, evidence for the positive effects of the intervention on depression was equivocal.[9] Specifically, in two of the trials that used an intensive advocacy intervention (of 12 hours or more), depressive symptoms did not improve at up to 12 months follow-up.[24-25] The trial that used a brief, one-off advocacy intervention (of about 30 minutes duration) in the

antenatal period for abused Chinese women showed that fewer women developed postnatal depression.[23] In the present study, even though we extended the brief intervention by adding a social support component in the form of 12 weekly telephone calls, it did not bring about clinically meaningful benefit in depressive symptoms. Screening of both the intervention group as well as the control group for IPV could be one of the reasons for the lack of clinically meaningful benefit as abuse screening by itself may have a beneficial effect for abused women.[26] As well, members of the control group may have received treament for depression outside the study without our knowledge. Passage of time and regression to the mean could also be responsible for participants in both arms moving from severe to moderate to mild on the BDI-II. Also, women in the intervention group appeared to be less interested in relationship advice than parenting counseling. This is consistent with the suggestion that Asian couples tend to frame their relationship issues in the context of raising children.[27] As such, the intervention could be providing services (on relationship) that the women did not want or use and this may have accounted for the lack of clinically meaningful improvement in their depressive sympyoms. Moreover, the intervention did not address issues such as role strain, finanical problems, unemployment/underemployment and lack of education, which are known to be contributing factors to depression. Even though the improvement in depressive symptoms was not clinically meaningful, the statistically significant reduction in the C-BDI-II scores and the women's positive feedback about the intervention suggest that advocacy intervention could be the basis for future models in addressing depressive symptoms of abused Chinese women in the community.

The reduction in psychological aggression in this study warrants attention. It is possible that the decrease in partner psychological aggression may have helped to improve intimate relationships and resolve conflicts, thus contributing to improvements

in depressive symptoms. While previous studies have identified the link between intimate psychological aggression and depression,[28-30] future research could further explore how a decrease in psychological aggression may reduce depressive symptoms.

Although the lack of attrition in this study may appear remarkable, previous trials involving abused women have also reported high retention rate. For example, in a trial conducted by McFarlane and colleagues involving abused women seeking protection orders against sexual intimates, 100% and 98.7% retention rates were achieved for the intervention and control groups respectively.[22] Similar to McFarlane et al.'s study which used a systemized tracking methodology to ensure high retention, we also employed systematic field tracking strategies augmented by the computerized records maintained by our well-established community center with a high number of membership in a district with relatively stable populations. In addition, few women in our study had been physically assaulted or sexually coerced which may account for the high percentage (98.5%) staying in the relationship, the less likelihood of their moving out of the district and therefore a high retention rate. Low attrition was also reported in a trial involving pregnant Chinese women with predominantly psychological abuse.[23] Remarkably, in a study population that was relatively mobile (socioeconomically upward mobile) and pre-occupied (with antenatal and postnatal demands), a 96% retention rate was attained largely through the use of a systematic tracking system which had informed the tracking strategies in the present study. Thus, a number of factors may have accounted for the remarkable retention rate in the present study including the perceived usefulness of the intervention/usual community services, the close monitoring of every stage of the trial by a team of committed and trained research staff, and the efficacious tracking strategies.

A limitation of this study is the reliance on self-reports which are subject to memory errors and conscious or unconscious distortions of what is reported.[31] Another

limitation is the relatively short follow-up period, hence only the short-term effects of the intervention could be ascertained.[9] Focusing on the women's efforts in coping with IPV without taking into account the actions of their partners is also a limitation. Without knowing the context in which IPV occurs, the actions of both the perpetrators and survivors cannot be fully understood.[32]

CONCLUSION

In this randomized clinical trial of an advocacy intervention for community-dwelling abused Chinese women, the findings showed that the intervention did not result in a clinically meaningful improvement in depressive symptoms.

Trial Registration: The study was first registered with the Hong Kong Clinical Trial Register (http://www.hkclinicaltrials.com/) (Trial Number: HKCTR-866) on 09 Feb 2007 and subsequently registered with ClinicalTrials.gov.

Author Contributions: Dr Tiwari had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design: Tiwari, Fong, Yuen, Yuk, Pang, Humphreys, Bullock.

Acquisition of data: Pang, Yuen, Yuk.

Analysis and interpretation of data: Tiwari, Fong, Humphreys, Bullock.

Drafting of the manuscript: Tiwari, Fong.

Critical revision of the manuscript for important intellectual content: Tiwari, Fong, Yuen, Yuk, Pang, Humphreys, Bullock.

Statistical analysis: Fong.

Obtained funding: Tiwari, Fong, Yuen, Yuk, Pang.

Administrative, technical, or material support: Pang, Tiwari, Yuen, Yuk, Humphreys, Bullock.

Study supervision: Tiwari, Fong, Yuen, Pang, Yuk.

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Table 1. Demographic characteristics of participants. Values are presented as n (%) or mean [SD].

Demographics	Control Group (n = 100)	Experimental Group (n = 100)	P-value
Age (self) (years)	37.99 [6.79]	38.18 [7.61]	0.872
Age (partner) (years)	44.08 [9.07]	45.2 [9.81]	0.543
Education level			0.558
≤ grade 6	30 (30)	25 (25)	
grade 7- 13	65 (65)	71 (71)	
Tertiary	5 (5)	4 (4)	
Place of Birth			0.391
Hong Kong	43 (43)	33 (33)	
Mainland China	56 (56)	65 (65)	
Years of living in HK			0.474
≤7 years (permanent resident status)	73 (73)	65 (65)	
Marital status			0.099
Married	91 (91)	88 (88)	
Single	3 (3)	5 (5)	
Divorced	6 (6)	7 (7)	
Number of children			0.647
≤ 1	51 (51)	46 (46)	
Chronic illness* (self)	11 (11)	15 (15)	0.531
Chronic illness* (partner)	8 (8)	11(11)	0.629
Employed (self)	32 (32)	30 (30)	0.886
Employed (partner)	78 (78)	76 (76)	0.882
Experiencing financial hardship	73 (73)	72 (72)	0.865
Receiving comprehensive social security assistance	9 (9)	33 (33)	<0.001
In need of financial support	58 (58)	65 (65)	0.391

* Chronic illness in this study refers a condition that is long-lasting or recurrent e.g., diabetes mellitus, chronic obstructive pulmonary disease, asthma, heart failure, cancer, arthritis, chronic renal failure.

Table 2. The BDI-II, ISEL, SF-12 and CTS2 mean scores for both groups

Scales[a]	Experimental group (n = 100) Mean [SD]			Control group (n = 100) Mean [SD]			Adjusted between group difference[c]	
	Baseline[b]	3-month	9-month	Baseline[b]	3-month	9-month	Estimate (95% C.I.)	p-value
BDI-II	37.88 [14.90]	24.38 [14.45]	16.10 [10.69]	39.33 [15.60]	26.25 [12.70]	18.25 [11.40]	-2.66 (-5.06, -0.26)	0.031
ISEL	7.13 [8.42]	15.94 [8.19]	21.09 [7.02]	6.73 [7.92]	13.51 [8.51]	19.49 [7.20]	2.18 (0.48, 3.89)	0.013
SF-12								
PCS	43.28 [7.67]	42.37 [7.22]	44.35 [7.64]	43.32 [7.59]	42.39 [7.37]	43.55 [7.30]	0.37 (-0.91, 1.65)	0.576
MCS	26.58 [7.64]	34.79 [8.87]	38.26 [8.56]	25.44 [7.66]	34.39 [8.26]	37.89 [8.08]	0.80 (-1.16, 2.77)	0.424
CTS2								
Psychological aggression	18.54 [10.20]	23.67 [15.89]	10.07 [5.91]	18.95 [10.36]	20.84 [10.45]	12.11 [8.57]	-1.87 (-3.34, -0.40)	0.014
Physical assault	1.68 [4.21]	1.27 [3.22]	0.23 [1.27]	1.55 [4.10]	3.21 [6.07]	0.45 [1.74]	-0.35 (-0.80, 0.10)	0.130
Sexual coercion	0.68 [3.32]	0.33 [1.29]	0.03 [0.30]	0.14 [0.73]	1.11 [2.70]	0.14 [0.75]	-0.02 (-0.12, 0.09)	0.602

a For the BDI-II, the possible range is from 0 to 63. Higher scores indicate higher levels of depression.
For the ISEL, the possible range is from 0 to 36. Higher scores indicate higher perceived social support.
For the SF-12, the possible range is from 0 to 100 with higher scores indicating better health–related quality of life. When the mean score is below 50, health status is below average.
For the CTS2, the possible range is from 0 to 6 for each of the items. Higher scores indicate higher levels of IPV.
b No baseline difference; $p \geq 0.125$
c Estimated between group difference (Experimental – Control) during 3-month to 9-month after adjustment for baseline values