International Journal of Public Health (2018) 63:693–702
https://doi.org/10.1007/s00038-018-1101-y

ORIGINAL ARTICLE

Social support intervention to promote resilience and quality of life in women living in Karachi, Pakistan: a randomized controlled trial

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Received: 17 November 2016 / Revised: 11 March 2018 / Accepted: 6 April 2018 / Published online: 21 April 2018

Abstract

Objectives This study tested the efficacy of a 6-week social support intervention for enhancing resilience and quality of life among women living in low socioeconomic areas of Karachi, Pakistan.

Methods One hundred and twenty women were randomly allocated to the intervention (n = 60) or control group (n = 60). Women in the intervention group attended a 6-week social support program, while those in the control group attended a single mental health awareness session. Outcome variables were measured via the resilience scale-14 item (RS-14), the resilience scale for adults (RSA), and World Health Organization quality of life brief scale (WHOQOL-BREF).

Results Compared to participants in the control group, women in the intervention group reported improvements in resilience measured by RS-14 (p = 0.022) and the structured style subscale of the RSA (p = 0.043). A medium effect size was also measured on the structured style subscale (d = 0.6, 95% CI = 0.62874, 2.57126). No significant findings were noted on QOL scores.

Conclusions Community-based social support interventions are a gender-sensitive-, culturally appropriate-, and resource-sparing approach to promote women's resilience and improve their mental health.

Keywords Resilience · Women · Social support · Mental health promotion

Introduction

Mental health disorders are a major public health concern around the globe and a leading cause of disease burden as measured by disability adjusted life years (DALYS) i.e., years of life lost because of mortality and disability from major diseases, injuries, and risk factors [World Health Organization (WHO) 2004, 2014a]. A recent meta-analysis of 174 large-scale population-based mental health surveys across 63 countries conducted by Steel et al. (2014) reported that one in five respondents met criteria for a mental disorder in the previous 12 months and 29.2% reported a chronic mental disorder. In developing countries like Pakistan, the rising burden of disease related to mental health disorders occurs not only because of the high prevalence of disease but also because of the growing treatment gap which refers to individuals who remain untreated due to various socioeconomic reasons (Wang et al. 2007).

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The mental health of women is of particular importance because of its close association with the health of children and families. There is evidence of the intergenerational effects of poor maternal mental health on children's physical health as well as their speech, cognitive, emotional, behavioral, academic and social development (Wachs et al. 2009). Worldwide, the most common mental health problems experienced by women are mood (4.0–7.3%) and anxiety disorders (4.3–8.7%, Steel et al. 2014) and women's rates of depression are twice that of men (Seedat et al. 2009; WHO 2008). In Pakistan, the estimated prevalence range of depression is 15–66% (Ali et al. 2002; Hussain et al. 2007) depending on how it is defined and measured.

Socioeconomic disadvantages render Pakistani women vulnerable to and at high risk for mental health problems that lead to a poor quality of life (QOL). Existing research from Pakistan and other South Asian countries report that the following factors significantly contribute to mental health problems: day-to-day stressors associated with women's multiple gender roles, inadequate social support, illiteracy, lack of accessibility to health facilities, and androcentric society (Rabbani et al. 2008; Thara and Patel 2006). This evidence points to the need for effective interventions that promote and support women's mental health. The literature from high- and low-income countries describes the use of expensive psychotherapeutic approaches (e.g., cognitive behavioral therapy, interpersonal therapy, and family-focused therapy) to promote mental health. (Patel et al. 2007; Rahman et al. 2008). However, these interventions are not accessible nor affordable for the majority of the people living in Pakistan. Given the personal, family, and societal burden of mental health problems, it is essential to initiate health promotion interventions that are accessible, low cost, and gender sensitive.

Resilience and QOL are multifaceted non-static phenomena that are also significant determinants of mental health. The current understanding of resilience elucidates it as both an individual capacity and a dynamic process that enables a person to adapt to stressful situations and retain functionality (Rutter 2012). QOL has been described as perceived global satisfaction (Diener and Suh 1997), functional status, sense of well-being, and the ability to access resources to maintain functional status (Economou et al. 2001). Several studies have established a positive association among resilience, QOL, and mental health (Mujeeb and Zubair 2012; Xu and Ou 2014).

Social support is a non-unidirectional, context-specific phenomenon that includes resources provided by others. It has also been described as 'social integration', 'social ties', and 'social networks' that include both structural (the size of the supportive network) and functional domains (quality of support ranging from tangible support to emotional support (Southwick et al. 2005). Existing evidence upholds social support as a robust intervention to improve physical health, and lower morbidity and mortality, which promotes QOL and mental health (Dennis et al. 2009; Pfeiffer et al. 2011). It also influences biological and environmental vulnerabilities and enhances resilience (Ozbay et al. 2007) and lack of social support has been associated with high level of stress measured by neurobiological markers (Stansfeld et al. 1997; Uchino et al. 1996). Despite strong scientific evidence indicating that social support promotes mental health, no study in the Pakistani context has tested a community-placed social support intervention of socioeconomically disadvantaged women to improve their resilience, QOL, and mental health. This study was conducted to test the efficacy of a 6-week social support program to enhance resilience and QOL among women living in a low socioeconomic area of the city Karachi, Pakistan.

Methods

Study design

This randomized controlled trial (RCT) was conducted between November 2015 and February 2016 in Karachi, Pakistan. A family health centre (FHC) in an urban community, was selected as a study site. The centre is operated by Aga Khan Health Services Pakistan (AKHSP), a non-profit health agency that works to improve population health in developing countries.

Social support intervention

The social support intervention developed for and tested in this study is theoretically rooted in the work that elucidates the relationship of stress and coping; social cognitive- and social control perspectives with well-being (Cohen et al. 2000). These perspectives hold that improvements to health can be achieved by modifying cognitive, emotional and behavioral appraisals and responses to stress (Lakey and Cohen 2000). In this study, social support is operationally defined as participation in a 6-week (1–1.5 h per week) manualized support group for women facilitated by a trained community health worker (CHW) in a community setting. The manual, developed specifically for this study, identified a topic for each weekly session along with learning objectives, information about the topic, and suggested exercises to encourage interaction and discussion. The primary emphasis of the intervention was to provide participants a safe environment in which they could learn about and discuss the concept of stress and its impact on their lives; share their feelings and experiences; and give/receive support to/from each other. Table 1 provides an

Table 1 Weekly outline of the social support intervention, Karachi, Pakistan, 2016

Week	Meeting activities
1	Establish group norms
	Begin building positive rapport among women and between women and the CHW
	Define social support and discuss its importance to health
	Check-out
2 and 3	Review group norms
	Check-in
	Define 'stress' and identify common sources of stress in their life
	Identify the influence of stress on the body, the mind, relationships, and health
	Homework: (1) identify a situation that you experience as stressful; (2) how did it affect you?
	Check-out
4 and 5	Review group norms
	Check-in—share homework
	Identify effective strategies for managing life challenges
	Homework: identify a situation in which you successfully managed a life challenge
	Check-out
6	Review group norms
	Check-in
	Identify three sources of social support
	Wrap up—(1) reflect on group sessions; (2) identify one thing that you have learned

CHW community health worker

outline of the topics addressed in the 6-week intervention. The intervention was offered to six unique groups and each group was comprised of a maximum of ten participants (total 60 women). The CHW followed the manual's instructions, shared information about the topic of the week, and facilitated group activities, discussion and interaction. The discussion portion of the group centered on members' personal needs and priorities. Participants were encouraged by the CHW to attend all of the sessions and to support and assist each other.

Women in the control group participated in a sham intervention involving a single didactic information session on the significance of mental health. The session was conducted by a nurse (not related to the study) and included a definition of mental health, a discussion of its significance, and identification of factors that contribute to or detract from poor mental health.

Participants

Young adult women (20–45 years of age) were recruited through the FHC and were eligible to participate in the study if they spoke Urdu language, did not have a diagnosed mental health disorder, and resided within the centre's catchment area. Women who did not speak Urdu or had an active plan of migration away from the study site were excluded.

Sample size was calculated to achieve sufficient power $(1 - \beta)$ of 0.8, $\alpha = 0.05$ and a moderate effect size of 0.59 estimated as a pooled standard mean differences [(δ/σ) = SMD] based on a meta-analysis by Pfeiffer et al. (2011). The total sample size calculated for this study was 90, with $n = 45$ per group. Anticipating a 30% attrition, we adjusted the sample size upward to 120 ($n = 60$ per group) to avoid threats to internal validity.

Randomization and allocation

All women were randomly assigned to either the intervention ($n = 60$) or the control group ($n = 60$) using a computer random number generator program. The random numbers were generated prior to recruitment and placed in consecutively numbered, sealed, opaque envelopes by the first author and given to the CHW. To minimize the risk of bias, the first author was not involved in participant recruitment or allocation to group.

Three local female CHWs were hired; two were responsible to carry out data collection each for baseline and post-intervention and one for delivery of the intervention. The CHWs were at least 18 years of age, had a minimum of grade 10 education, could speak and write Urdu, and had good communication skills. They received 10–15 h of one-to-one training from the principal author (SH) on topics related to the study's purpose and methods; ethical responsibilities for respect, privacy, and confidentiality, and the content of the intervention modules. The CHWs responsible for data collection were blinded and did not know the participants' group allocation. They received direct supervision from the first author throughout the study.

The CHW responsible for recruitment and baseline data collection introduced the study to potential participants who visited the FHC. Interested women who met inclusion criteria were given a copy of the participant information letter; the CHW read the information letter to women who could not read or write. Those who wished to participate were asked to sign or to put their thumb impression on the consent form. All participants were given the opportunity to ask questions before agreeing to participate.

The study received ethical approval from the University of Alberta Health Research Ethics Board (HREB) and from the Ethics Review Committee, Aga Khan University Karachi, Pakistan. Letters of support and operational approval were obtained from the Strategic Planning Committee of AKHSP.

Outcome measures

Data was collected at two points—at baseline and 6 weeks post-intervention by two trained blinded CHWs (one for each measurement) in a private room at the FHC or at participants' houses. Demographic variables assessed at baseline included information regarding age, education, language, relationship marital status, children, employment, monthly household income, and history of mental illness.

The Resilience Scale (RS-14)

The primary outcome variable of this study was resilience as measured by the RS-14 (Wagnild 2009). This scale has been used to measure resilience among individuals of various ages (i.e., adolescents to older adults) from diverse socioeconomic and cultural backgrounds (Wagnild 2009). The scale assesses five major concepts believed to be essential to resilience: a purposeful life (three items); perseverance (two items); self-reliance (five items); equanimity (two items); and existential aloneness (two items) (Wagnild and Young 1993). Higher scores on the RS-14 scale indicate better resilience. The RS-14 possesses strong psychometric properties, with a Cronbach's Alpha of 0.93 among adult and old age populations (Wagnild 2009). Bhamani et al. (2015) validated the Urdu version of RS-14 and reported it as a good option for measuring resilience in a sample of community-dwelling women in Pakistan (Cronbach's alpha = 0.763). The minimal clinical important difference (MCID) of RS-14 is not yet established, however, Jaeschke et al. (1989) propose that a change of 0.5 score per item on a Likert-type scale is the MCID. RS-14 has 14 items, therefore, according to Jaeschke et al.'s (1989) principle, a change in score of seven between baseline and post-intervention would indicate the MCID.

Resilience scale for adults (RSA)

Although the RS-14 scale was previously tested in the Pakistani context, we also employed the RSA because more than 50% of its items measure family and social domains of resilience, which we deemed to be more gender sensitive. The RSA is a 33-item, five-point semantic differential scale (Friborg et al. 2003) that contains factors related to perception of self (six items); planned future (four items); social competence (six items); structured style (four items related to life goal, its planning and organization to achieve them); family cohesion (six items); and social resources (seven items). Likewise, RS-14, the higher scores on the RSA scale indicate better resilience. The scale's Cronbach's alpha varies from 0.67 to 0.94. The MCID for this scale is not specified. The RSA was translated into Urdu and back translated and reviewed by two experts who were not part of the research team to validate linguistic and conceptual similarity.

World Health Organization quality of life scale (WHOQOL-BREF)

The secondary outcome variable for this study was QOL, measured with the WHOQOL-BREF (WHO 1996), a well-known 26-item scale whose items employ a 5-point Likert scale. This scale measures the following four major domains of QOL: physical health (seven items); psychological health (six items); social relationships (three items); and environment (eight items). An additional two questions focus on overall QOL and health-related QOL. The Cronbach's alpha reported for this scale is 0.7–0.87 (Skevington et al. 2004). In this scale too, the higher scores reflects the better QOL. As well, the instrument's validity has been tested in 30 languages, including Urdu. The Urdu version of WHO-QOL BREF was translated, back translated, pretested, and evaluated for the scale's linguistic, conceptual, and scale equivalence (Ahmer et al. 2007). Den Oudsten et al. (2012) established the MCID for the WHOQOL in women with early stage breast cancer. In that study, the MCID was a change of 1 score on the WHOQOL. The same MCID was set for the current study.

All of the measures in Urdu language were pilot tested with 12 women (i.e., 10% of the total sample), who did not participate in the full study. Pilot testing did not result in any modification in the scales.

Data analysis

Data were analyzed using IBM SPSS Statistics 24. Demographic data were compared using Chi-square and analysis of variance (ANOVA). Cronbach's alpha for all the three scales was calculated at baseline and after 6 weeks. Change scores were calculated by subtracting post-intervention scores from pre-intervention measures. Differences in scores between groups of resilience and QOL were calculated using the *t* test for two independent samples. The sample estimates from this analysis were confirmed with boot strapping technique. Multivariable linear regression modeling was used to identify significant predictors of the resilience scores after intervention. Cohen's *d* was calculated to determine the effect size. All analyses were performed based on intent-to-treat and using 95% CI (level of significance at 0.05).

Results

One hundred and thirty two women were approached to partake in this study; 12 women declined to participate because of lack of interest or due to lack of spousal permission. After providing written informed consent and demographic data, 120 were entered into the study. Seven women in the intervention group were unable to attend all of the sessions due to conflicts with paid work hours, illness, a wedding, and child's sickness. However, these seven women completed all post-intervention measures and their data was included in the analysis.

Demographic variables

There were no statistically significant differences in the demographic characteristics of participants in the intervention and control groups (Table 2). The mean age of the women in the intervention and control groups was 31 and 32 years, respectively. 88.3% of women in the intervention group and 96.7% of women in the control group were married. Eighty-five percent of women in the intervention group and 77% of women in the control group had formal schooling, with majority having secondary education (grade 6–10). More than 50% of the women in both groups reported a total family monthly income between 10,000 and 24,000 rupees ($150.00–$360.00 USD per month), where 22% of women in the intervention group and 20% of women in the control group were working.

Reliability statistics of outcome measures

Cronbach's alpha for the all three scales (RS-14, RSA, and WHOQOL) was calculated and ranged from 0.679 to 0.832 at baseline and 0.722 to 0.789 6 weeks post-intervention (Table 3).

Changes in resilience

Table 4 shows difference between the intervention and control group when 6 week scores were compared to the baseline scores for each group. Findings revealed significant differences (p value < 0.05) in the mean change scores of RS-14 (mean = − 3.05, SD = 11.6 for the intervention group, mean = − 7.29, SD = 11.3 for the control group, $p \leq 0.05$) and structured style subscale of

Table 2 Baseline demographic of participants, Karachi, Pakistan, 2016

	Intervention group (n = 60) %	Control group (n = 60) %	p value
Age mean (SD)	30.63 (5.67)	32.25 (6.64)	0.154
Marital status			
Married	88.3	96.7	0.358
Single	5	1.7	
Separated	1.7	0	
Widow	5	1.7	
Formal schooling	85	76.7	0.371
Primary (1–5 years)	8.33	10	
Secondary (6–10 years)	48.33	40	
Higher than grade 10	28.33	26.7	
Preferred language Urdu	100	98.3	0.315
No. of people in family			
Less than two people	13.3	5	0.324
Three to five people	53.3	50	
Six to nine people	28.3	36.7	
More than ten people	5	8.3	
Husbands employed	90	91.7	0.082
Total monthly income			
Less than ten thousand rupees	3.33	1.7	0.100
10 to 24 thousand rupees	66.7	55	
25 to 40 thousand rupees	25	26.7	
Children	81.7	93.3	0.091
Pregnancy	8.3	8.3	0.214
Currently working	21.7	20	0.822
Family history of mental illness	6.7	10	0.509

Table 3 Reliability statistics of outcome measures (n = 120), Karachi, Pakistan, 2016

Scales	Items	Cronbach's alpha (baseline)	Cronbach's alpha (after 6 weeks)
RS-14	14	0.750	0.774
RSA	33	0.832	0.722
WHOQOL-BREF	26	0.679	0.789

RS-14 resilience scale-14, *RSA* resilience scale for adults, *WHOQOL-BREF* World Health Organization quality of life brief scale

Table 4 Comparison of change scores for resilience and quality of life (QOL) in the study groups, Karachi

	Intervention (n = 60)			Control group (n = 60)			p value
	Baseline mean (SD)	Post mean (SD)	Change score* mean (SD)	Baseline mean (SD)	Post mean (SD)	Change score* mean (SD)	
RS-14	85.92 (8.97)	82.87 (10.32)	− 3.05 (11.6)	87.87 (7.71)	79.95 (9.98)	− 7.92 (11.3)	0.022*
RSA	133.86 (16.88)	138.86 (13.43)	5.0 (18.5)	134.05 (15.29)	135.66 (13.85)	1.61 (14.9)	0.275
Personal strength/ perception of self	24.03 (4.10)	25.65 (3.37)	1.62 (4.5)	24.26 (3.55)	25.02 (3.36)	0.75 (4.6)	0.304
Personal strength/ perception of future	14.36 (2.99)	15.98 (2.98)	1.62 (3.6)	14.33 (3.36)	16.87 (2.25)	2.53 (3.8)	0.183
Structured style	17.90 (2.87)	17.08 (2.72)	− 0.82 (3.0)	17.58 (3.13)	15.48 (2.64)	− 2.1 (3.8)	0.043*
Social competence	24.93 (4.42)	25.67 (3.90)	0.73 (4.8)	25.21 (4.37)	24.45 (5.43)	− 0.77 (4.3)	0.075
Family cohesion	23.58 (4.72)	25.15 (5.58)	1.57 (6.8)	23.88 (4.99)	25.12 (5.58)	1.23 (5.7)	0.773
Social resources	29.05 (4.89)	29.33 (5.08)	0.28 (6.1)	28.76 (3.88)	28.73 (4.98)	− 0.03 (5.4)	0.765
WHOQOL overall QOL	74.58 (14.18)	77.50 (14.33)	2.91 (17.2)	72.91 (19.14)	74.58 (14.18)	1.66 (18.9)	0.706
QOL r/t general health	71.66 (18.10)	77.08 (11.54)	5.41 (17.8)	66.66 (18.79)	74.58 (15.60)	7.90 (21.8)	0.494
Physical health	62.67 (7.39)	61.78 (8.32)	− 0.89 (10.9)	63.33 (8.74)	60.53 (9.89)	− 2.79 (14.3)	0.415
Psychological	68.40 (10.49)	62.63 (7.97)	− 5.76 (12.0)	66.11 (9.15)	62.91 (11.05)	− 3.19 (15.2)	0.307
Social relationships	69.79 (17.18)	71.38 (12.18)	1.59 (18.5)	66.11 (16.51)	70.06 (12.66)	3.95 (16.3)	0.461
Environment	62.50 (11.23)	58.38 (11.01)	− 4.1 (13.8)	63.12 (9.46)	59.58 (11.85)	− 3.5 (12.7)	0.814

RS-14 resilience scale-14, *RSA* resilience scale for adults, *WHOQOL-BREF* World Health Organization quality of life brief scale, *r/t* related to
*Change score = post scores − pre scores

RSA (mean = −0.82, SD = 3.0 for the intervention group, mean = − 2.1, SD = 3.8 for the control group, $p < 0.05$). Figure 1 illustrates the distribution of pre- and post-scores of RS-14 and the structured style domain of RSA in both study groups. Cohen's d also showed a medium effect of the intervention on the structured style subscale of RSA (d = 0.6, p = 0.001, 95% C.I = 0.62874, 2.57126) and small effects on RS-14 and other subscales of RSA (Table 5). In the intervention group, mean total RSA score increased by 5.0 (SD = 18.5) score points and higher change mean scores were also noted for the remaining subscales of RSA (except perception of future subscale) but there were no statistically significant differences compared to the control group.

Changes in QOL

The mean change score for overall QOL increased in the intervention group (mean = 2.91, SD = 17.2), compared to the control group (mean = 1.66, SD = 18.9) indicating clinical improvement suggested by (Den Oudsten et al. 2012). But the difference was not statistically significant. Similar results were found when the same analysis was conducted (for both resilience and QOL) using bootstrapping technique.

Multiple linear regression analysis was performed at baseline and at 6 weeks post-intervention. There were no significant associations between outcome variables of resilience and QOL scores and the demographic variables of participants (age, education, employment, and income). However, the post-intervention regression analysis indicated that study groups (β = − 0.289, p = 0.001) and baseline total RSA scores (β = 0.212, p = 0.01) explain 12.8% of the variance (R^2 = 0.128, F = 8.57, p = 0.000) in structured style scores in the RSA scale supporting the effect of intervention on this domain of the RSA.

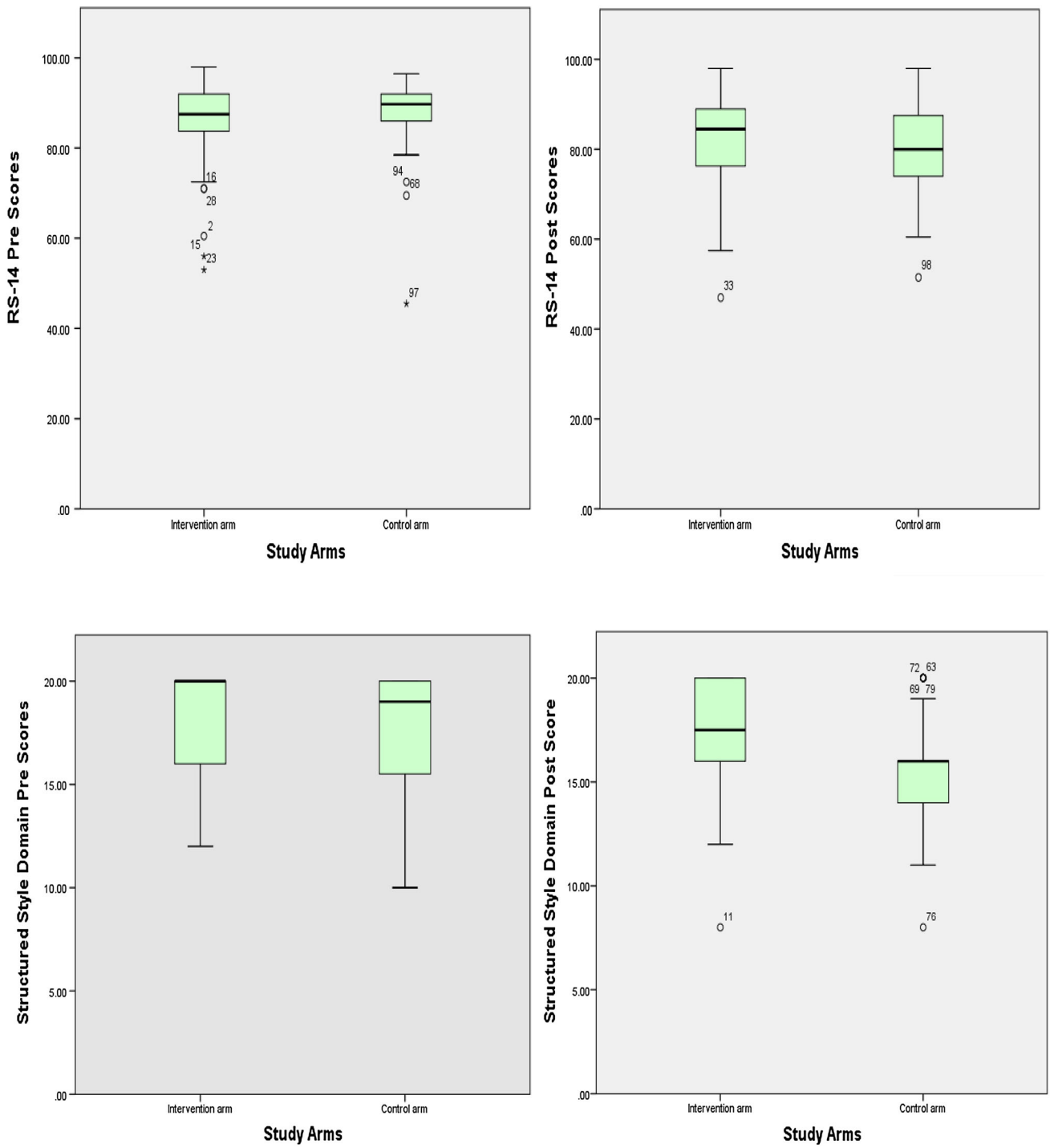

Fig. 1 Box plot for baseline and post-intervention scores for total resilience scale (RS-14) score and structured style domain of the resilience scale for adults (RSA), Karachi, Pakistan, 2016

Discussion

This study tested the hypothesis that participation in a 6-week social support intervention would improve resilience and QOL in women who received the intervention as compared to women who did not. There is growing empirical support for a positive association between social support and health, however, to date no study has examined the effect of a community-based social support intervention on women's resilience and QOL in Pakistan. The intervention produced statistically significant differences in women's resilience measured by RS-14 and their structured

Table 5 Effect size (Cohen's *d*) on resilience scale (RS-14) and the structured style subscale of the resilience scale for adults (RSA), Karachi, Pakistan, 2016

	Intervention group (n = 60) Mean (SD)	Control group (n = 60) Mean (SD)	Cohen's d	Effect size r	95% C.I	
					Lower	Upper
RS-14	82.87 (10.32)	79.95 (9.98)	0.287	0.142	− 0.74663	6.59663
RSA structured style domain	17.08 (2.72)	15.48 (2.64)	0.596	0.286	0.62874	2.57126

style domain of resilience (i.e., their ability to organize themselves and effectively plan to achieve their goals) as measured by the RSA. There were no statistically significant between group differences in QOL scores. These findings resonate with existing evidence that endorses social support as a significant contributor to distress reduction in women [Canadian Institute for Health Information (CIHI) 2012] and providing strong protection for vulnerable distressed women (Ozbay et al. 2007) and it is associated with improved mental well-being in community population (Kessler and McLeod 1985).

Better resilience scores in the intervention group may have been mediated by a variety of factors. Women experienced a safe and trustworthy environment to talk, reflect, and learn. After the third meeting in almost every group, women openly shared their feelings and experiences. The constant reminders about the importance of maintaining privacy and confidentiality may also have given them confidence to freely participate. In each intervention group, there was at least one woman who was emotionally strong and who shared her experiences of effectively dealing with stressful life events. These women became de facto peer leaders and were recognised as knowledgeable and reliable sources of advice and support by the other women (Hinton et al. 2004). These women inspired other women and enabled them to recognize their own strengths by sharing their own examples and success stories of addressing their life challenges positively. Overall, this intervention was able to raise awareness among women regarding their own potential and ability to improve their lives.

Improvements in women's structured style scores of RSA is an encouraging finding that women were able to see themselves having a meaningful approach towards life, where they could plan to achieve their life goals and handle stressful life events wisely. This characteristic is one of the essential determinants of mental health (WHO 2014b) It may assist women to make effective decisions in life not only for themselves but also for their children and families. This was evident during discussions in intervention groups, where most of the women's priorities were their children and families. They talked about desires for a better family life and better futures and sought suggestions from their peers. These findings are consistent with the tend-and-befriend (Taylor et al. 2000) behavioral response among women. When dealing with life stressors, women do not only worry about themselves but also think about their children and families by building and sustaining social ties that facilitate this process. This befriending response in women profoundly correlates with better mental health (Tamres et al. 2002; Taylor 2006).

Women in the control group also showed slight improvements in their post-intervention mean scores of resilience and QOL measures. It is possible that the single session on mental health awareness offered to the control group provided the women with an opportunity to meet with other women and to talk about issues affecting their mental health. This finding also supports the previous work of the primary author in Pakistan where women in the control group have also showed self-improvement when they had the opportunity to attend adult literacy classes (Karmaliani et al. 2011). It is possible that in the context of developing countries like Pakistan, where resources are limited and the burden of mental health issues is higher, at least one session of this kind has the potential to positively influence women's mental health. However, this single session's effect observed in the control group could be short-lived. It is possible that more sessions will be required to have significant and sustainable effects.

The intervention in this study was designed considering the contextual realities of a resource poor setting. Generally, women living in Pakistani context, especially those who live in low socioeconomic and androcentric families have few opportunities to talk openly about their needs, priorities and goals in life. They typically have little say in decision-making, in matters that affect them, their children, or their family, which contributes to feelings of frustration and distress. Despite having no formal obligation to attend the social support intervention, 88% of participants attended all sessions. Those who missed some sessions had genuine reasons for doing so, which clearly suggests that women enjoyed the sessions and found them to be helpful.

The small to medium effect size on resilience in the intervention group holds the promise of positively influencing women's mental health over the long term. This finding echoes the findings of a meta-analysis of 69

preventive programs to improve mental health where the effect size was also small i.e., 0.22 (Jane-Llopis et al. 2003). However, in view of public health strategies, prevention interventions are likely to bring large benefits to people even if there is only a small effect size on individuals (Rose 2008). In contexts like Pakistan, where the risk for mental health deterioration is high for women and interventions for mental health promotion are rare, nominal intervention can show positive change (Rahman et al. 2016). Therefore, the control group in this study has also shown improvement in their post-intervention mean score of resilience as a result of an hour awareness session.

Evidence also indicates that social support intervention is the most cost effective approach for improving health outcomes (Pfeiffer et al. 2011; Roux et al. 2008) and has a strong impact when integrated with health services (CIHI 2012).In this study, testing of social support intervention at a primary health care setting supports the notion of promoting mental health of people by introducing feasible, inexpensive and relevant interventions especially in contexts like Pakistan where treatment for mental health disorders is expensive.

While planning this study, we tried our best to anticipate common pitfalls of conducting RCT in a community setting to maintain its rigor. Despite these efforts, the study has some limitations, such as the unavailability of a validated version of RSA in Urdu language. However, we went through the process of translation and, back translation and pilot tested the RSA prior to data collection to ensure its integrity. Another potential limitation was the lack of long-term follow-up, which would have allowed us to determine the long-term effects of this social support intervention. However, we believe that the 6-week social support intervention identified an approach to the process of enhancing the resilience in the women who participated. We also believe that this study has established the possibility of integrating this intervention at community health care setting and has demonstrated strong relevance with public health mandate of promoting population's mental health. Larger trials with longer duration of follow-up are needed to evaluate the effect of this intervention on women's resilience and QOL.

Worldwide, the burden of mental health problems calls for health care professionals to intervene. Developing countries like Pakistan have a large treatment gap and are unable to provide equitable access to mental health services to large segments of their population. The findings of this study lends support to the use of community based programs to promote resilience in primary health care settings, thereby reducing the burden of mental health disorders among socially and economically disadvantaged persons. Making such interventions part of public health programs particularly in communities with limited resources may contribute to improving the mental health of women and will also promote the development of healthy families and societies.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from all individual participants included in the study.

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