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Effects Of A Relationship Strengthening Intervention On Quality Of Life Of Young Low-Income, Minority Parents

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**Effects of a relationship strengthening
intervention on quality of life of young low-income,
minority parents**

by

Rongrong Wang

THESIS

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Abstract

Partners in LIFE (PIL) is a 15-session relationship-based intervention delivered to young low-income minority parents (age 14-25). Forty-nine parenting couples were recruited from urban pediatric clinics and randomized into PIL or a control group. PIL activities consisted of relationship strengthening (e.g., intimacy, empathy, communication, conflict resolution), parent education, and sexual health. The control group received only parent education. Participants were assessed at baselines and immediately after the intervention (4 months from baseline). Using within-groups analysis of variance (ANOVA) to account for the dependence of the data from time and dyad, we evaluated the effects of this intervention on physical and mental quality of life (QOL). There was a significant interaction of intervention * time * gender effect ($p=0.003$) for mental QOL. For males, PIL significantly increased mental QOL compared to controls ($p=0.009$); but for females the PIL and control did not differ ($p=0.101$). However, there was a dose response relationship for females ($d=0.63$). Females with > 50% attendance of PIL sessions increased their mental QOL, while those with <50% attendance had a decreased mental QOL. No intervention effects were observed on physical QOL. Our results provide preliminary evidence for the effectiveness of a relationship strengthening intervention for young low-income minority parents to improve mental quality of life.

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Introduction

The transition to parenthood has been identified as one of the most difficult adjustments for new parents and it is particularly stressful for young parents, whose pregnancy is often unplanned. These young adults are simultaneously struggling to cope with a change associated with emerging adulthood, development of romantic relationships, and pressure from childbirth and rearing [1, 2]. The hardship of young parents has been linked to a variety of adverse consequences for both mother and child. Young mothers (age<20) are more likely to develop postpartum depressive symptoms compared to older mothers [3, 4]. Parental depression and subsequent poor parenting are related to behavioral, emotional, developmental, and functional problems in children [5, 6]. Strong mother-father relationships may be protective against some of these adverse consequences. Research suggests that strong relationships among young parents have positive effects on maternal well-being, child health and parenting [7-10].

Maintaining good relationships, however, is also challenging for new parents. Becoming a parent is associated with an increase in marital conflict and a decline in marital satisfaction[11-15]. For young parents, it is even harder. There is evidence that most fathers of children born to adolescent women are not living with the mothers of their children and nearly half of relationships of young parents end 1-years postpartum [16, 17]. Even though stressful, the transition to parenthood is a time when women and men are motivated to make positive life changes for the well being of their child [2]. Therefore, it is important to develop effective interventions that help young parents maintain positive relationships for themselves and their children. The need for intervention is particularly important among low-income minority populations where the burden of unintended pregnancy contributes to disparities in reproductive and maternal child health outcomes [9].

A recent study on young, low-income minority couples suggests that better relationship adjustment relates to more positive mental and physical quality of life for both young women and men[9]. To our knowledge, no randomized clinical trial has shown that a program focusing on relationship improvement, delivered to low-income minority young parents, can improve physical and mental well-being for young parents. In this study, we test the effectiveness of Partners in LIFE (PIL), a relationship strengthening intervention, on improving mental and physical quality of life among low-income minority parents.

Method

Study Procedures and Participants

Data for this study come from a randomized clinical trial (RCT) of young low-income minority couples. Between 2012-2014, 49 couples (n=98) were recruited from

community-based organizations, clinics, and community sites in New Haven, Connecticut. Eligible participants were identified and research staff explained the study in detail. Written informed consent and contact information for both members of the couple were then obtained. All participants provided written informed consent at the time of baseline assessment. Inclusion criteria were: (1) women's age between 14 and 25 and men's age 14 or older; (2) a biological child that is 0-5 years old; (3) both members of the couple name the other as their main partner or themselves as a romantic couple; (4) not known to be HIV positive; and (5) English-speaking. A computer generated randomization sequence was used to randomize 25 couples to the intervention and 24 couples to the active control group.

Couples were assessed separately at baseline and 4 months. Assessment was done using audio computer assisted self interviewing (A-CASI) at our research offices. All procedures were approved by the Yale University Human Investigation Committee and Institutional Review Board. Participants were reimbursed \$25 for the baseline assessment, and \$35 for the 4-month assessment. At 4-month assessment, the intervention group had a 100% rate of retention and the control group had a 96% retention rate.

Intervention

The PiL intervention consisted of 15 weekly 1.5-hour group sessions, with activities focusing on relationship strengthening, parenting skills and sexual health. The relationship strengthening intervention consisted of activities based on the Attachment theory and principles of Emotion Focused Therapy[18], with an emphasis on improving attachment, intimacy, communication, equity/power, conflict resolution, and emotion regulation among couples. The active control group was given only the Nurturing Families Program, with a focus on information related to parent education. The intervention group and active control group had the same amount of total contact time (22.5 hours). Twenty-two percent in the intervention group and 47.9% in control group attended more than 7 sessions. The attendance rate of at least one but less than 7 sessions was 48% for intervention group and 22.9% for control group. Non-attendance rate was 30% and 29.2%, respectively. The intervention was facilitated by two trained community group facilitators (one male and one female). To avoid contamination across conditions, the intervention and active control conditions were facilitated by separate community facilitators. Fidelity was assessed by both facilitators and observers through checklists and results demonstrated overall fidelity.

Measures

After the first session, participants completed surveys that included basic demographic information, mental health related indicators, and Quality of Life. Collected demographic information included age, sex, race/ethnicity, education level (highest grade complete), median household income, length of relationship, whether living together, number of biological children, and number of children living in the

household. Mental health related indicators included a depressive symptom scale and a perceived stress scale. After the last session, information on changeable demographic variables and Quality of Life was again collected.

Quality of Life (QOL) was assessed using the 8-item Short Form Health Survey (SF-8). Participants responded to questions regarding their overall health, as well as their bodily pain, energy level, and emotional problems. The SF-8 was chosen because it achieved both brevity and strong psychometric properties, and yields two summary measures – mental QOL and physical QOL [9, 19]. It is common to use the SF-8 to evaluate programmatic success, measuring physical and mental QOL before and after the implementation of an intervention, with higher scores indicating better self-reported Health related QOL [20]. Example items include “Overall, how would you rate your health”, “how much did physical health problems limit your usual physical activities (such as walking or climbing stairs), and “how much did personal or emotional problems keep you from doing your usual work, school or other daily activities?”. Reliability for mental QOL is 0.706 and is 0.511 for physical QOL.

Analysis

Randomization of intervention condition was tested. To assess baseline differences between two groups on demographic variables, we conducted a series of t-tests for continuous variables and chi-square tests for categorical variables. Fisher’s exact test was used when any category had expected counts less than 5. Given that this was a development and pilot project, we were not powered to detect significant differences on outcomes. Sample size was largely based on guidelines for pilot RCT, which suggest 15-30 participants per cell [21]. With 25 couples in the intervention group and 24 couples in the control group (n=50 for intervention and n=48 for control), we had power of .80 to detect an effect size of $d=.75$ assuming an ICC of .30 and a 2-tailed alpha of .05 [22].

Intent-to-treat principles were followed when assessing the effects of this intervention on physical and mental QOL. We used within-groups analysis of variance (ANOVA) to account for the dependence of the data from time and dyad. Within-group ANOVA was used when same subjects are measured more than once on the same dependent variable or when subjects are not independent. To examine whether there were significant time differences between intervention and control group as well as whether over-time effects of intervention differed between men and women, we assessed time, intervention, and gender main effects and interaction terms (time*intervention and time*intervention*gender) in the model.

A dose-response relationship was explored if no difference was observed between the two conditions. Participants were categorized into two groups based on their attendance rate. Low-dose group ($0 \leq \text{dose} \leq 7$) consisted of participants in the control group and participants in the intervention group who attended no more than 7 sessions. Those attended more than 7 sessions were high-dose group ($\text{dose} > 7$). Since randomization was broken for this sub-analysis, we assessed group

differences in regard to baseline characteristics, using two-sample t-tests for continuous variables and chi-square tests or Fisher's exact tests for categorical variables. Within-group ANOVA was again used to assess over-time differences between different dose groups.

All p-values were calculated with two-tailed tests. All analyses were done separately for mental QOL and physical QOL, using SAS 9.4.

Results

Intervention vs. Control

At baseline, mean age was 20.8 years (SD=2.6) for women and 22.9 (SD=5.3) for men. The majority of participants were African-American (61.2%) or Hispanic (29.6%), with 9.2% some other race/ethnicity. Mean education level was just over high school (12.2 years (SD=2.2)) and mean of median household income was \$14,695 (SD=\$15,600). Partnership duration was 3.3 years and 60.2% of couples were living together. In regard to number of biological children and number of children participants lived with, the two groups were fairly similar. No statistically significant differences were found between intervention and control groups at baseline on any demographic characteristics and two mental health related indicators (Table 1).

Figure 1 and 2 showed differences of the change of mean mental QOL from baseline to 4 months after baseline between treatment and control groups for male and female participants. For males, there was a significant change in mental QOL for the treatment group when compared with the control group. For females, there was no significant difference between the two treatment conditions. The dependence of mental QOL change on intervention conditions and gender was reflected in a significant intervention*time*gender interaction ($F_{1,186}=9.25$, $p=0.003$). Further analyses indicated that this three-way interaction was due to the presence of a significant intervention*time interaction for male participants ($F_{1,93}=7.09$, $p=0.009$); but not for female participants ($F_{1,93}=2.75$, $p=0.101$). Among male participants, the intervention significantly increased mental QOL ($p=0.002$); but no significant change was found for control group ($p=0.538$). No intervention effect was observed on physical QOL (Table 2).

Dose-response analysis for female participants

No statistically significant differences were found among two dose groups on any demographic characteristics and mental health related indicators (Table 3). Figure 3 showed differences of the change of mean mental QOL from baseline to 4 months after baseline among two dose groups for female participants. The mean mental QOL for those females with less than 50% attendance rate decreased 4 months from

baseline ($p=0.152$) while there was an increase of mean mental QOL for those who attended more than 7 group sessions ($p=0.593$). The difference of mental QOL change for the two groups was not significant ($F_{1,93}=0.92$, $p=0.341$). An effect size $d=0.634$ was found, comparing high-dose group to low-dose group ($p=0.130$).

Discussion

We found evidence that the PiL intervention was associated with improved mental QOL for male participants. Results of intent-to-treat analyses indicated that intervention group had higher mental QOL scores at 4 months compared to baseline. For female participants, no intervention effect was found in intent-to-treat analyses. To explore the reason for non-effect among female participants, we conducted dose-response analyses. Results suggested that PiL intervention increased mental QOL for participants with an attendance rate $>50\%$; but may have not reached statistical significance due to small sample size in this dose group. Results also suggested that the mental QOL for participants in $0 \leq \text{dose} \leq 7$ group decreased after 15 group sessions. An offset of effect in these two groups might explain the null results found in intent-to-treat analyses for female participants. It is important to figure out why male and female participants responded differently to the PiL intervention. One possible explanation is that female participants were impacted more negatively by stressful events than male participants. In our study, 23% of women in low-dose group and 17% in high-dose group broke up with their male partners during the intervention period. Prior studies indicate that women exhibit lower psychological health compared to their male partners in unsatisfied relationships [23-25]. It is possible that relationship discontinuation had generated more negative impact on mental well-being for females. In addition, women in our study spent six more hours per day with their children than their male partners ($p=0.0003$). Evidence shows that women who bear the primary responsibility of raising children have worse mental health [26, 27]. Female participants in our study felt more stressful to be a parent than their male partners ($p=0.008$). Despite the positive effect on mental well-being, the PiL intervention was not able to reduce the responsibility of children rearing. And the burden from the responsibility might have reduced women's responsiveness to the PiL intervention. The negative impact of stressful events on female participants might also explain the decline of mental QOL in low-dose group. This, however, highlighted the improved mental well-being in high-dose group. When compare the change of mental QOL in high-dose group to low-dose group, a decent effect size was found. Even though it is not significant, it suggests that the PiL intervention might be effective in buffering the decline of mental QOL for female participants.

Our results highlight the importance of interventions focusing on relationship strengthening among young parents. In 2013, there were approximately 274,641 babies born to young mothers aged 15–19 [28]. Research has consistently documented increased risk of worse mental health among adolescents and young

parents, and that is related to parenting, child development, and mental well-being of their children [4-6, 29-31]. There are many existing interventions aimed at promoting outcomes for young parents, particularly for young mothers. However, most of them focus on parenting knowledge, sense of competence in parenting role, and parent interaction with child [32-34]. Limited interventions were found to target relationships and mental well-being. Two interventions to strengthen coparenting relationship have been developed and implemented. The Young Parenthood Program, an intervention administered during pregnancy among 105 adolescent parents, was found effective in improving parental functioning [35]. However, no psychological outcomes were assessed. The Family Foundation program, an intervention delivered to 69 adolescent, White, and relatively high-income expecting parents, significantly decreased depression scores for nonmarried mothers in intervention group [36]. An effect size of 0.72 was found. For the PiL intervention, we found a comparable effect size of 1.128 for male participants and 0.63 for female participants in high-dose group. This suggests that a couple-based intervention focusing on relationship strengthening may be effective in improving mental well-being among young low-income, minority parents. To our best knowledge, PiL is the first intervention that aims at improving mental health among low-income minority adolescents and young parents by strengthening couple relationship.

The positive results for male participants in our study should be noted. The important role of men in raising children and family development is well documented [37, 38]. The predominance of literature dealing with young parents has been written about the mothers and much less about the young fathers [39]. Efforts to address father engagement have primarily focused on middle-class, White fathers and overlook fathers who are not married, low-income [38]. With economic and relationship instability, and worse mental well-being, low-income minority young fathers' role in children development is limited, thus presenting with more needs for help [40, 41]. Our results of male participants suggest that a relationship-strengthening intervention may be promising in engaging low-income minority young fathers in behavior changes towards more involvement in children and family development.

Despite our studies strengths, there are several limitations that we should note. First, the sample size of this study is small. In addition, the sample may have limited generalizability given that couples were recruited from a single geographical region. Second, we included self-report measures instead of biological measures of mental and physical health. Relying on self-report measures was a limitation of the study. However, the SF-8 we used is one of the most validated and used measures of QOL, which increases the meaningfulness of our results. Third, the overall attendance rate was low for both conditions. Conflict with work schedules was identified as one important reason for non-attendance. A couple-based intervention on teen parents with similar structure with PiL suggests that flexibility in the timing and location is important in reducing participant attrition [42]. Future intervention should consider involvement of technology, such as smartphone apps, to improve flexibility

in participation.

Our results provide preliminary evidence for the effectiveness of a relationship strengthening intervention for young low-income minority parents to improve mental quality of life. Due to small sample size, we did not conduct subgroup analysis for first-time parents and couples with more than one child. Future study with larger sample size could help us explore whether the number of biological children is an important factor. Future study could also help us confirm the positive effect of this kind of intervention on young mothers. Exploring the mechanism of how a relationship strengthening intervention leads to improved mental health among young parents is another important direction for future study. For example, examine separate function of different relationship determinants (e.g., attachment, intimacy, communications, equity/power, conflict resolution, emotional regulation) on mental health.

Tables and Figures

Table 1 Participant characteristics at baseline by intervention group^a

Basic characteristics	Intervention (n=50)	Active Control (n=48)	P value
Age (mean, SD)	21.7 (4.1)	22.0 (4.5)	0.730
Race/ethnicity (N, %)			
African American	29 (58.0%)	31 (64.6%)	0.290
Hispanic	18 (36.0%)	11 (22.9%)	
Other	3 (6.0%)	6 (12.5%)	
Education level (mean, SD)	11.8 (1.6)	12.5 (0.4)	0.122
Median Household Income (mean, SD)	\$14,905.8 (14,844.4)	\$14,478.4 (16,511.3)	0.900
Length of relationship (mean, SD)	3.6 (0.3)	3.1 (0.3)	0.256
Living together (N, %)			
Yes	28 (56.0%)	31 (64.6)	0.390
No	22 (44.0%)	17 (35.4)	
# of biological children (N, %)	1.4 (0.1)	1.5 (0.2)	0.752
# of children living with (N, %)	1.2 (0.7)	1.2 (0.8)	0.911
Depression Scale	9.0 (7.1)	10.6 (8.2)	0.280
Perceived Stress Scale	14.8 (16.7)	16.8 (15.2)	0.124

^a Numbers may not sum to total due to missing data, and percentages may not sum to 100% due to rounding.

Table 2 Mean mental Quality of Life

	Gender	Intervention Group (n=25)		Control Group (n=24)		Effect size (d)	P-value
		Baseline	4 months	Baseline	4 months		
Mental QOL	Male	42.9 (12.1)	53.1 (9.5)	47.9 (13.1)	45.7 (10.8)	-1.128	0.017
	Female	47.3 (8.6)	40.6 (14.1)	42.8 (12.1)	44.0 (12.0)	0.690	0.245
Physical QOL	Male	47.3 (10.5)	46.6 (8.2)	48.2 (7.6)	49.2 (9.7)	0.191	0.777
	Female	42.8 (9.6)	46.0 (9.5)	48.5 (9.8)	47.3 (8.3)	-0.468	0.171

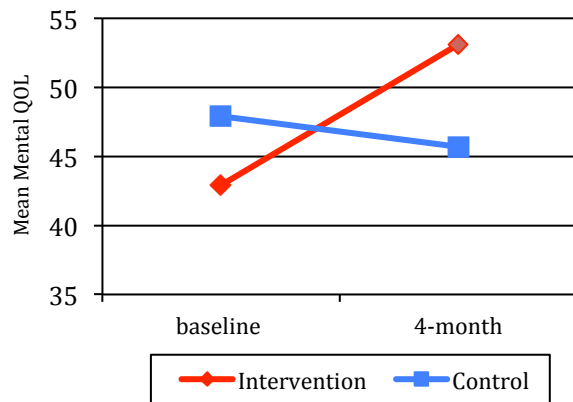
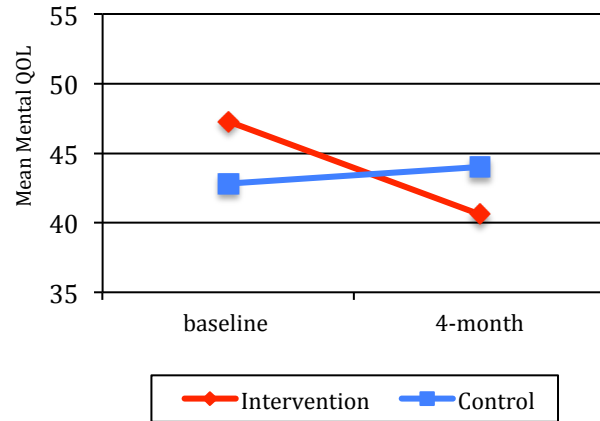
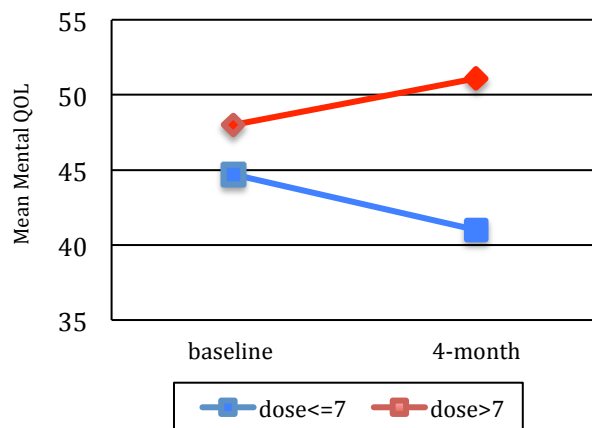
Table 3 Female participant characteristics at two dose groups^a

Basic characteristics	0<=dose<=7 (n=12)	dose>7 (n=6)	P value
Age (mean, SD)	20.9 (2.6)	20.5 (2.5)	0.737
Race/ethnicity (N, %)			
African American	26 (60.5)	3 (50.0)	0.796
Hispanic	13 (30.2)	3 (50.0)	
Other	4 (9.3)	0 (0.0)	
Education level (mean, SD)	12.2 (2.3)	12.3 (1.9)	0.861
Median Household Income (mean, SD)	\$12,479.8 (15018.3)	\$13,750.0 (17871.1)	0.852
Length of relationship (mean, SD)	3.3 (1.9)	3.8 (2.6)	0.557
Living together (N, %)			
Yes	16 (37.2)	3 (50.0)	0.665
No	27 (62.8)	3 (50.0)	
# of biological children (mean, SD)	1.4 (0.6)	1.3 (0.5)	0.737
# of children living with (mean, SD)	1.3 (0.6)	1.3 (0.5)	0.976
Depression Scale	11.6 (8.1)	11.7 (5.4)	0.976
Perceived Stress Scale	16.6 (5.9)	18.5 (1.9)	0.122

^a Numbers may not sum to total due to missing data, and percentages may not sum to 100% due to rounding.

Table 4 Mean mental Quality of Life for female participants

0<=dose<=7		dose>7		Effect size (d)	P-value
Baseline	4 months	Baseline	4 months		
44.7 (11.0)	41.0 (12.9)	48.0 (7.3)	51.1 (11.8)	-0.634	0.130

Fig.1 Interaction of intervention condition and time for male participants**Fig.2** Interaction of intervention condition and time for female participants**Fig.3** Interaction of different dose groups and time for female participants

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