Maternity homes and social support: A cross-sectional survey stratifying outcomes

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ABSTRACT

Poor social support is associated with adverse obstetric outcomes. Maternity group homes (MGHs), residential programs for pregnant women, have been found to improve social support in small studies. The present study aimed to verify these previous studies, discover whether there is a group of women whom MGHs most benefit, identify what services offer that benefit, and identify how to predict who will most benefit from MGH admission. Forty-three US MGHs from 14 states were surveyed from August 2015 to February 2017. The primary outcome was self-reported social support before and during MGH admission. The secondary outcome was the perception that MGH admission would help current and future relationships. Among 95 respondents, 54% perceived better in-MGH support compared to pre-MGH support. Women with poor pre-MGH support reported improvement; the converse was true of high pre-MGH support ($P < 0.001$). A total of 77% to 82% of participants anticipated that MGH admission would help current and future relationships, including 91% to 92% of women with stable or increased in-MGH support ($P = 0.07$ current, $P < 0.01$ future). Participants with increased in-MGH support reported more services as helpful ($P < 0.05$). In summary, MGHs are associated with improved support and relationships for most residents. The support score may identify which women may benefit most from MGH admission.

KEYWORDS Interpersonal relationships; maternal morbidity; maternity group home; maternity home; pregnancy; social support

Lack of social support is associated with adverse obstetric outcomes such as low birth weight,¹ depression,² excessive weight gain,³ and smoking status and use of prenatal care.⁴ The best intervention to increase social support is unknown.⁵ Home-based visits, telephone interviews, and in-office interventions have failed to show consistent benefit.^{1,6,7} Studies of interventions are plagued by confounding factors.^{8–10}

Maternity group homes (MGHs) have been studied in the past as an intervention to increase social support. MGHs provide housing to pregnant and postpartum women, with some extending eligibility as long as 2 years after delivery. MGHs often supply other services such as social work, parenting classes, mental health care, and transportation.¹¹ In small studies, MGHs have been associated with improved social support and no increased maternal morbidity among

obstetrically low-risk women with increased social and psychiatric comorbidities.^{12–15} A survey of two US MGHs found that a slight majority of residents reported increased social support associated with MGH admission.¹⁶ However, MGHs have a high per capita cost.¹¹ No studies have yet investigated how to identify women who might report improved social support after MGH admission. Furthermore, although several reports have described the many services that MGHs can offer, no study has described which of these services benefit women most.¹¹ The present study aimed to verify previous studies on improved social support, discover whether there is a certain group of women whom MGHs can most benefit, identify what about these programs offers them that benefit, and attempt to identify a way to predict which women will most benefit from MGH admission.

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METHODS

This was a cross-sectional study of women living in MGHs (residents) between August 1, 2015, and February 28, 2017. Approval was sought and obtained from the institutional review board at Baylor University Medical Center for expedited review and verbal consent of participants and for participants at off-campus sites. Participants were given a cover letter, provided verbal consent, and given a password to access the survey. (Consent was tracked by use of passwords, which was tied to specific sites but not to specific participants.) The need for informed consent was waived due to minimal risks.

Funding was received from Baylor Health Care System Foundation to compensate survey participants with a \$10 gift card. The funder had no role in study design, and all researchers were independent of funders. This study was not registered. The reporting of this study conforms to the Strengthening the Reporting of Observational Studies in Epidemiology Statement for cross-sectional studies.¹⁷

All English-speaking, literate residents of US MGHs were eligible to complete the survey. For the purposes of this study, MGH is defined as “a residential program, providing substantial supervision and other services, serving primarily pregnant or parenting girls and women.”¹¹ Online listings of MGHs were found using public search engines and terms including “maternity home,” “maternity group home,” “homeless,” “pregnant,” and “pregnancy shelter.” Several listings of programs were pooled to yield 238 programs.

These programs were contacted by email and telephone to determine their scope. Access to the survey was provided to programs meeting the definition above. To protect the anonymity of participants, names and IP addresses were not collected. Programs were supplied with passwords so that participants submitted the survey only once.

The 13-item survey written at an eighth-grade reading level was administered online using Google Forms or on paper. The survey was reviewed by an independent expert in minority and underserved populations and teen health (K.M.). The survey was not validated. After collecting demographic information, the participants were asked for a subjective perception of social support on a scale from 0 to 10 (“support score”). Participants selected a number from 1 to 10 to represent their social support before their participation in the MGH (referred to as “pre-MGH” in this study) and during their participation (referred to as “in-MGH”), with 1 representing “very alone most of the time” and 10 describing “connected and supported most of the time.” Participants were then asked to list people with whom they had good relationships. Following this, they were asked whether they perceived that the MGH was “helping with relationships now” and whether they thought that the current stay in an MGH would “help relationships in the future.” Finally, they were asked to enumerate what services or aspects of the MGH helped with current or future relationships.

Continuous variables were expressed as medians and ranges due to lack of normality of the distributions. Categorical variables were expressed as numbers and percentages. Differences in categorical variables were assessed between groups using chi-square test and Fisher’s exact test. Analysis of variance or the Kruskal-Wallis test was used for three-group comparisons of continuous variables depending on the normality of the distributions. Independent Student’s *t* test or the Kolmogorov-Smirnov test was used for pairwise comparisons of continuous variables depending on distribution normality. A *P* value of <0.05 was used to denote statistical significance. All analyses were performed using SPSS version 23.0 for Windows. All authors had full access to all of the data, including statistical reports and tables, and take responsibility for the integrity of the data and the accuracy of the data analysis.

Of the 238 programs contacted, 117 did not respond to multiple contacts. Twenty-six programs had no working contact information listed; 40 programs were reached but did not meet inclusion criteria because they were actually domestic violence shelters, rehabilitation houses, or other programs; 12 programs met inclusion criteria but declined participation; and 43 programs met inclusion criteria and were recruited. During the survey period, one of these programs subsequently withdrew, citing interval closure (*Figure 1*).

RESULTS

Twenty-five programs responded with at least one survey, for a total response rate of 60%. Response rates from each home were not calculated due to concerns from some programs that the number of current residents not be shared with investigators. A total of 95 responses were recorded from 14 states. Non-Hispanic black respondents were overrepresented compared to 2016 US census data¹⁸ (31% in study data compared to 13%), with white non-Hispanic and Hispanic respondents underrepresented (40% compared to 61%, 3% compared to 18%, respectively) (*Table 1*).

Fifty-four percent of women reported a higher in-MGH support score compared to their pre-MGH score, 36% reported no change between scores, and 9% reported a lower in-MGH score. A total of 78% and 83% of women anticipated that their stay in a home would help current and future relationships, respectively (*Table 2*). The most important aspects of MGH admission to residents were program staff and other residents of the home; also of high importance was the current pregnancy or newborn (*Table 3*).

Women’s experiences of support and their perceptions about relationships were significantly impacted by the difference between their pre-MGH and in-MGH support scores. The median entry score was 5. Women whose in-MGH scores were higher than their pre-MGH scores started out with significantly lower pre-MGH scores (median 3, range 1–8) and increased to a median of 7.5 (*P* < 0.001). Women who reported in-MGH scores that were lower than their pre-MGH scores had above-median pre-MGH scores (median 8,

Figure 1. Recruitment results.

range 6–10) and fell to a median of 5 (range 1–9, $P < 0.001$). Moreover, 85% to 92% of women with stable or increased in-MGH scores believed that their stay would help with current and future relationships, compared to 56% of women with decreased support ($P = 0.05$ for current relationships, $P < 0.01$ for future relationships).

Significantly fewer women with decreased in-MGH scores anticipated that the MGH would help with current relationships when compared to the remainder of women in an overall comparison. Pairwise comparisons were significant between decreased and increased in-MGH support ($P < 0.05$).

The services most often reported as helpful with relationships were also statistically different between the aforementioned groups. Those with stable in-MGH support scores reported more services as helpful compared to women with decreased in-MGH scores (4 vs 2) and, again, women with increased in-MGH scores reported more services were helpful than those with stable scores (4 vs 6, $P < 0.01$). This P value

Table 1. Demographic characteristics of the 95 respondents in maternity group homes

Characteristic	Response	<i>n</i>	%
Age (years)	<20	25	26%
	20–24	45	47%
	25–29	8	8%
	30–34	9	10%
	35–39	6	6%
	>39	2	2%
Race and ethnicity	Non-Hispanic white	38	40%
	Hispanic white	19	20%
	Non-Hispanic black	29	31%
	Hispanic black	3	3%
	Other	6	6%
Education	Did not complete high school	26	27%
	Completed high school	57	60%
	Has GED	12	13%

Table 2. Support and relationship responses for 94 respondents in maternity group homes^a

Characteristic	<i>n</i>	%
In-MGH support score lower than pre-MGH support score	9	10%
In-MGH support score same as pre-MGH support score	34	36%
In-MGH support score higher than pre-MGH support score	51	54%
Anticipate MGH stay will help with current relationships	78	83%
Anticipate MGH stay will help with future relationships	83	88%

MGH indicates maternity group home.

^aAll scores were self-reported on a 10-point scale of increasing connection and support from 1 (*very alone most of the time*) to 10 (*connected and supported most of the time*).

of <0.01 reflects an overall comparison. Pairwise comparisons between decreased and increased in-MGH support ($P < 0.01$) and between stable and increased in-MGH support ($P < 0.05$) were also significant.

Program staff ($P < 0.05$), classes taken ($P < 0.05$), and the resident's current pregnancy or newborn ($P < 0.05$) were all more likely to be reported by women with increased or stable in-MGH support scores (Table 3). The P value of <0.05 regarding program staff reflects an overall comparison across all groups simultaneously. Pairwise comparisons approached significance between decreased and increased in-MGH support ($P = 0.07$) and between stable and increased in-MGH support ($P = 0.06$). The P value of < 0.05 for classes taken reflects an overall comparison. A pairwise

Table 3. Program services and relationships for 94 respondents based on perceived level of support in the maternity group home compared to before

Question	Current relationships				Future relationships			
	Support score, <i>n</i> (%)			<i>P</i> value	Support score, <i>n</i> (%)			<i>P</i> value
	Decreased	Stable	Increased		Decreased	Stable	Increased	
Anticipate that services will be helpful	(<i>n</i> = 9)	(<i>n</i> = 34)	(<i>n</i> = 51)		(<i>n</i> = 9)	(<i>n</i> = 34)	(<i>n</i> = 51)	
Yes	5 (56%)	29 (85%)	44 (86%)	<0.05	5 (56%)	31 (91.2)	47 (92.2)	<0.01
Services described as helpful ^a	(<i>n</i> = 5)	(<i>n</i> = 29)	(<i>n</i> = 44)		(<i>n</i> = 5)	(<i>n</i> = 31)	(<i>n</i> = 47)	
Program staff	2 (40%)	17 (59%)	36 (82%)	<0.05	2 (40%)	16 (52%)	32 (68%)	0.22
Fellow residents	1 (20%)	10 (35%)	23 (52%)	0.18	1 (20%)	9 (29%)	18 (38%)	0.56
Rules	0	9 (31%)	15 (34%)	0.29	0	9 (29%)	21 (45%)	0.08
Classes	1 (20%)	5 (17%)	20 (46%)	<0.05	NA	NA	NA	NA
Job	0	6 (21%)	5 (11%)	0.34	0	6 (19%)	11 (23%)	0.46
The current pregnancy	0	17 (59%)	26 (59%)	<0.05	2 (40%)	16 (52%)	30 (64%)	0.40
Growing up	0	12 (41%)	24 (55%)	0.06	0	18 (58%)	29 (62%)	<0.05
Being away	0	10 (35%)	18 (41%)	0.19	0	10 (32%)	16 (34%)	0.29
Safety	0	12 (41%)	23 (52%)	0.08	0	11 (36%)	19 (40%)	0.20
Abstaining from alcohol	1 (20%)	2 (7%)	11 (25%)	0.14	1 (20%)	2 (7%)	11 (23%)	0.15
Abstaining from drugs	1 (20%)	2 (7%)	4 (9%)	0.64	0	2 (7%)	4 (9%)	0.77
Help with being pregnant	1 (20%)	8 (28%)	23 (52%)	0.07	0	5 (16%)	16 (34%)	0.08
Transportation for medical care	0	5 (17%)	14 (32%)	0.15	0	3 (10%)	10 (21%)	0.24
Personal beliefs	3 (60%)	15 (52%)	26 (59%)	0.81	3 (60%)	17 (55%)	26 (55%)	0.98
Other	0	1 (3%)	2 (5%)	0.87	1 (20%)	2 (7%)	6 (13%)	0.54
Total services	2 (1–3)	4 (1–11)	6 (1–12)	<0.01	2 (1–3)	4 (1–10)	5 (1–11)	<0.01

NA indicates not available.

^aWomen could choose multiple services that were helpful for their current and future relationships.

comparison between stable and increased in-MGH support was also significant ($P < 0.05$). The P value of <0.05 for the current pregnancy reflects an overall comparison, but pairwise comparisons between decreased and stable in-MGH support ($P < 0.05$) and between decreased and increased in-home support ($P < 0.05$) were also significant.

Although age did not differ significantly with change in support, the opportunity of “just growing up” was chosen as significantly more helpful to future relationships by those with increased in-MGH scores ($P < 0.05$) (Table 3). This P value reflects an overall comparison. Pairwise comparisons approached significance between decreased and increased in-MGH support ($P = 0.0502$).

Neither age nor educational status was associated with change in score (Table 4). The number of good relationships was not different between women with different scores (Table 4). Across all races and ethnicities, a pattern approaching statistical significance ($P = 0.05$) emerged suggesting that non-Hispanic black women tended to report decreased in-MGH social support. MGH locations varied widely (Figure 2), but demographics did not differ significantly

across geographical regions. Overall comparison of geographical locations with relationship and social support data revealed no statistically significant differences ($P = 0.51$ and 0.10 for current and future relationships, respectively, $P = 0.78$ for change in social support).

Eleven of the women who completed paper surveys filled out the survey incorrectly. When asked whether their support score changed, these residents marked the box labeled “no” but then circled a new number for their subsequent score, effectively saying that their score *had* changed. An intentional choice of a different score was interpreted as a different level of social support, and the previously marked “no” was discounted. These surveys were compared to the remaining 84 women to determine whether the errors would affect analysis. No significant differences were found between the first 84 women and the 11 except that the former had a significantly higher median number of MGH services that they thought were helping with current relationships (5 vs 3; $P < 0.01$) and future relationships (4 vs 2; $P < 0.05$). One woman provided only demographic information, and this was the only analysis for which she was included.

Table 4. Demographic characteristics and relationship data for 94 respondents based on perceived level of support in the maternity group home compared with before

Characteristics	Decreased (<i>n</i> = 9)	Stable (<i>n</i> = 34)	Increased (<i>n</i> = 51)	<i>P</i> value
Age (years)				0.67
<20	3 (33%)	8 (24%)	14 (28%)	
20–24	5 (56%)	17 (50%)	23 (45%)	
25–29	0	3 (9%)	5 (10%)	
30–34	0	3 (9%)	5 (10%)	
35–39	0	2 (6%)	4 (8%)	
>39	1 (11%)	1 (3%)	0	
Race				0.05
Non-Hispanic white	3 (33%)	14 (41%)	21 (41%)	
Hispanic white	0	5 (15%)	14 (28%)	
Non-Hispanic black	4 (44%)	9 (27%)	15 (29%)	
Hispanic black	0	3 (9%)	0	
Other	2 (22%)	3 (9%)	1 (2%)	
Education				0.42
Did not complete high school	2 (22%)	12 (35%)	12 (24%)	
Finished high school	7 (78%)	17 (50%)	32 (63%)	
Has a GED	0	5 (15%)	7 (14%)	
Good relationships ^a				
Father	3 (33%)	10 (29%)	15 (29%)	0.97
Mother	7 (78%)	18 (53%)	25 (49%)	0.28
Brother	4 (44%)	11 (32%)	16 (31%)	0.74
Sister	6 (67%)	14 (41%)	20 (39%)	0.30
Stepfather	0	3 (9%)	3 (6%)	0.61
Grandparent	5 (56%)	7 (21%)	13 (26%)	0.10
Aunt	3 (33%)	11 (32%)	14 (28%)	0.86
Uncle	4 (44%)	6 (18%)	8 (16%)	0.13
Father of this baby	4 (44%)	8 (24%)	9 (18%)	0.20
Boyfriend	0	4 (12%)	10 (20%)	0.26
Male friend	3 (33%)	7 (21%)	12 (24%)	0.72
Female friend	3 (33%)	14 (41%)	22 (43%)	0.86
Male religious figure	3 (33%)	7 (21%)	5 (10%)	0.14
Female religious figure	1 (11%)	1 (3%)	6 (12%)	0.35
Doctor	2 (22%)	7 (21%)	2 (4%)	<0.05
Nurse	1 (11%)	2 (6%)	2 (4%)	0.66
Teacher	2 (22%)	3 (9%)	5 (10%)	0.49
Neighbor or roommate	2 (22%)	7 (21%)	11 (22%)	0.99
Other	0	1 (3%)	8 (16%)	0.09
Total relationships	6 (1–13)	4 (1–11)	4 (0–12)	NA

NA indicates not applicable.

^a“Good” relationships were those identified by participants as any existing relationship with a living person that was not “bad.”

Figure 2. US map with participating sites denoted by black circles. Census regions, as denoted by different backgrounds, are Northeast, Midwest, South, and West.

DISCUSSION

The present study verifies that MGHs are associated with self-reported increased social support in most women during their stay and is the largest study of this type in the USA. The reported improvement in social support in a modest majority of women and stable social support in about one-third of women very closely resembled results of a smaller survey.¹⁶

This study further defines two populations of women currently served by MGHs. One, with self-described low social support outside the MGH, tended to improve to above-median support scores once in the MGH. The other population, entering with above-average pre-MGH support scores, did not benefit as much. The support score, although not validated prior to this study, may be further studied as a tool to identify whether women will benefit from participation in this resource-intensive intervention.

The authors hypothesize that women who are severing connections with a community (regardless of how dysfunctional) may have little pre-MGH support; for example, if a woman escapes a toxic relationship or an addiction in order to make a new start for her baby, she may have no remaining social connection prior to her stay in the home and may forge new structures in the MGH. By contrast, if a woman steps away from a relatively intact social network for the MGH, the artificial structures provided by the program will likely seem forced and unfamiliar.

This study also documented a difference between non-Hispanic black women and white women with regard to report of improved support, one of the many disparities affecting this population during pregnancy. This may be due to a number of effects, but the authors speculate that many MGHs' staff may not emerge from this population, and thus these residents may experience negative effects as an underrepresented minority.

The study design is limited by potential recall bias and response bias. In addition, the survey itself was not

constructed to capture many relevant nuances of residents' lives. For example, the survey did not directly assess the reason for admission to an MGH, such as homelessness or need for detoxification. Moreover, the survey did not ask how long respondents had stayed in the MGH and was not designed as an exit interview. This may have introduced selection bias or may not have measured programs' maximum effects.

A further limitation of this study was the dependence on programs to allow access to the residents. Many programs had internal policies prohibiting resident participation in research. The study did not request how many residents stayed at each program and thus had no way of identifying response rates from individual sites.

Finally, the adequacy of sample size is difficult to assess. Recruitment revealed that a remarkable number of programs had closed or shifted their focus to other, less intensive social services. For example, the Department of Health and Human Services report from 2005¹¹ noted that New Mexico had established a statewide network of MGHs; by the time of the present study, there were no MGHs in that state. In light of this, there is no way to know whether 95 responses is an adequate sample.

In conclusion, although there have been significant closures in the United States, programs in this country and in other countries offer hope for this promising though intensive intervention to improve social support. This study may identify a way to improve cost-effectiveness of MGHs and should encourage further, more nuanced study and consideration of policies promoting such interventions.

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1. Hodnett ED, Fredericks S, Weston J. Support during pregnancy for women at increased risk of low birthweight babies. *Cochrane Database Syst Rev*. 2010;(6):CD000198. doi:10.1002/14651858.CD000198.pub2.
2. Lancaster CA, Gold KJ, Flynn HA, Yoo H, Marcus SM, Davis MM. Risk factors for depressive symptoms during pregnancy: a systematic review. *Am J Obstet Gynecol*. 2010;202:5–14. doi:10.1016/j.ajog.2009.09.007.
3. Hartley E, McPhie S, Skouteris H, Fuller-Tyszkiewicz M, Hill B. Psychosocial risk factors for excessive gestational weight gain: a systematic review. *Women Birth*. 2015;28:e99–e109. doi:10.1016/j.wombi.2015.04.004.
4. Orr ST. Social support and pregnancy outcome: a review of the literature. *Clin Obstet Gynecol*. 2004;47:842–855. doi:10.1097/01.grf.0000141451.68933.9f.
5. Hetherington E, Doktorchik C, Premji SS, McDonald SW, Tough SC, Sauve RS. Preterm birth and social support during pregnancy: a systematic review and meta-analysis. *Paediatr Perinat Epidemiol*. 2015;29:523–535. doi:10.1111/ppe.12225.
6. Bennett C, Macdonald GM, Dennis J, et al. Home-based support for disadvantaged adult mothers. *Cochrane Database Syst Rev*. 2007;(3):CD003759. doi:10.1002/14651858.CD003759.pub2.
7. Macdonald G, Bennett C, Dennis J, et al. Home-based support for disadvantaged teenage mothers. *Cochrane Database Syst Rev*. 2007;(3):CD006723. doi:10.1002/14651858.cd006723.
8. Ncube CN, Enquobahrie DA, Albert SM, Herrick AL, Burke JG. Association of neighborhood context with offspring risk of preterm birth and low birthweight: a systematic review and meta-analysis of population-based studies. *Soc Sci Med*. 2016;153:156–164. doi:10.1016/j.socscimed.2016.02.014.
9. Shapiro GD, Fraser WD, Frasch MG, Séguin JR. Psychosocial stress in pregnancy and preterm birth: associations and mechanisms. *J Perinat Med*. 2013;41:631–645. doi:10.1515/jpm-2012-0295.
10. Staneva A, Bogossian F, Pritchard M, Wittkowski A. The effects of maternal depression, anxiety, and perceived stress during pregnancy on preterm birth: a systematic review. *Women Birth*. 2015;28:179–193. doi:10.1016/j.wombi.2015.02.003.
11. Hulsey LK, Wood RG, Rangarajan A; Mathematica Policy Research. *The Implementation of Maternity Group Home Programs: Serving Pregnant and Parenting Teens in a Residential Setting*. Washington, DC: US Department of Health & Human Services; 2005. <https://aspe.hhs.gov/report/implementation-maternity-group-home-programs-serving-pregnant-and-parenting-teens-residential-setting>.
12. Keen-Payne R, Bond ML. Voices of clients and caregivers in a maternity home. *West J Nurs Res*. 1997;19:190–204. doi:10.1177/019394599701900205.
13. Koniak-Griffin D. Psychosocial and clinical variables in pregnant adolescents. A survey of maternity home residents. *J Adolesc Health Care*. 1989;10:23–29. doi:10.1016/0197-0070(89)90042-9.
14. Koniak-Griffin D, Walker DS, de Traversay J. Predictors of depression symptoms in pregnant adolescents. *J Perinatol*. 1996;16:69–76.
15. Yordan EE, Yordan RA. The maternity home for adolescents: a concept from the past fulfilling a contemporary need. *Conn Med*. 1993;57:65–68.
16. McNeil BA, Tash WR, Preister S. Adolescent pregnancy program stresses family counseling, educational services. *Hosp Prog*. 1984;65:12–14, 31.
17. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP; STROBE Initiative. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *J Clin Epidemiol*. 2008;61:344–349. doi:10.1016/j.jclinepi.2007.11.008.
18. US Census Bureau. Quick facts, United States; 2016. <https://www.census.gov/quickfacts/fact/table/US/PST045216>.