SUPPORT IN PREGNANCY

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Abstract
Both observational studies and nonrandomized controlled trials have found the presence of support during pregnancy to be associated with superior outcomes in terms of preventing abortion, extending the length of gestation, and reducing interventions in labor. However, randomized controlled trials of supportive interventions in pregnancy have not demonstrated any physical benefits from the interventions. It is also unlikely there are any significant adverse effects. Psychological benefits do appear to result from supportive interventions, including better enjoyment of the pregnancy and better postnatal status.

SUPPORT AS A TECHNOLOGY

How strange to see support discussed in a volume on technology! However, there is a relationship between support and technology. Social support is often regarded either as the antidote to technology, as an alternative to technology, or as a preventive measure against the need for technology, especially to avoid obstetric technology. The effectiveness of social support in these roles is generally assumed, and this belief is sometimes zealously defended. Who would dare question the value of love? However, double standards may exist for those who are opposed to high technology, because hard experimental evidence of effectiveness is required before high technology can be accepted, yet no such rigorous assessments are required for the acceptance of such “soft” interventions as social support, education, or lifestyle changes (7;21). As a consequence, when the effectiveness of technologies cannot be demonstrated, there is often no hesitation in recommending a “soft” alternative, despite a similar lack of evidence for the effectiveness of the new option (20).

One reason for the lack of discomfort with recommending “soft” interventions is the belief that these interventions cannot be harmful. This belief is another example of double standards, for if social support is truly a panacea for illness, how could it be that this support is then the one powerful beneficial therapy in medicine that is free of powerful adverse effects? Obviously, “soft” technology such as social support requires the same standards of scientific evaluation that are required for high technologies such as in-vitro fertilization. These assessments should be able to demonstrate effectiveness, adverse effects, and costs.

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THEORIES OF ACTION

Social support has been described in various ways, but one acceptable definition is that of Thoits (33), who defines social support as the social gratification received through interaction with others. Thoits has further divided operational social support into expressive and instrumental components; expressive support is sympathy, empathy, understanding, affection, acceptance, and acting as a confidant; instrumental support consists of information, advice, and material aid. Furthermore, social support may be "enacted" as actual assistance or merely "perceived" to be a resource that is available if it is required.

There are two main theories of the ways in which social support acts on health outcomes (8). The stress-buffering theory postulates that social support intervenes between a source of stress and an individual's response to it by affecting the person's appraisal of the stress. In other words, the perception that others will help reduces a person's perception of the potential harm that a source of stress could cause or bolsters an individual's perceived ability to cope. This mechanism could work by dampening the physiological responses to stress or by encouraging appropriate behavioral responses. Expressive support could provide the self-esteem necessary for this response and instrumental support could provide information regarding the source of stress or coping resources. The other theory is the main-effect theory. This theory postulates that social support provides the self-esteem and information necessary to alter health behaviors so as to avoid stressful situations.

A physiological link between stress and adverse outcomes of pregnancy has been demonstrated. Physically and psychologically stressful events in humans result in increased catecholamine levels, with the highest levels being associated with the greatest anxiety (19). Uterine blood vessels respond to catecholamines with vasoconstriction (24). In pregnant primates, a causal relationship has been demonstrated between stress and fetal bradycardia and asphyxia (23). These effects on the uteroplacental unit could therefore be reasonably postulated to initiate adverse pregnancy outcomes. Theoretically, social support could act to avoid or dampen these responses, and consequently to prevent or ameliorate such adverse pregnancy outcomes as preterm labor or asphyxia.

Although theories about beneficial physical effects have long been accepted by social scientists, it was the establishment of this physiological link that has attracted clinicians' interest in the use of social support as a therapy.

OBSERVATIONAL EVIDENCE OF THE EFFECT OF SUPPORT

Centuries of folklore have recorded the association between psychosocial factors and the outcome of pregnancy. For example, such prenatal experiences as being frightened by an animal have been believed to lead to congenital malformations that give animal-like features in an infant, and abortion, preterm birth, or stillbirth have been believed to result from emotional upsets. Moreover, we have all observed that illnesses often follow periods of emotional stress. The widely known data linking coronary heart disease to personality and stress have provided validity to this observation (17).

There have been several good reviews of the associations between psychosocial factors and pregnancy outcomes (12;16;22). With a few exceptions, these studies have found a consistent association between stress (generally measured by life events) and adverse pregnancy outcomes. Social class could potentially confound this association because low social class is associated both with stress (3) and with poor outcomes (11). However, the association has still been found in studies that adjusted for this con-
Bryce founding (1;25). The observation of an association between anxiety and complications in pregnancy has been less consistent (4).

The first objective evidence that social support may affect stress and birth outcomes was provided by Nuckolls et al. (26), who prospectively stratified pregnancies by stress levels at 32 weeks and measured psychosocial assets including social support. In the women with high stress levels, complications of pregnancy occurred three times more commonly in those women with low psychosocial assets than in those with high assets. A separate study of Navajo women also found an association between life events, poor social support, and adverse pregnancy outcomes (2). On the other hand, Berkowitz and Kasl (1) retrospectively recorded data on life events, support, and preterm birth and found no significant differences in outcome between supported and unsupported women. In general, however, the published data support an ameliorating effect on stress by social support in pregnancy.

CONTROLLED TRIALS OF SUPPORT IN PREGNANCY

The effects of social support interventions in pregnancy have been tested in numerous randomized and nonrandomized clinical trials. The majority of the interventions tested have not had social support as their primary aim, but involved it as one component or as an unavoidable consequence. These trials have been reviewed previously (5;27), and it appears reasonable to conclude that support as part of prenatal education or of enhanced prenatal care has been shown to improve the involvement of women and their partners in pregnancy and to improve their satisfaction with it. However, there has been little effect demonstrated on health behaviors or physical outcomes of pregnancy. Unfortunately it is the physical outcomes that are most likely to influence health care planners to introduce social support programs, because these are where the cost savings lie.

The effects of social support in pregnancy on preterm birth and low birth weight are now the most extensively investigated physical outcomes. However, trials with several different outcomes are worthy of mention. Stray-Pederson and Stray-Pederson (32) allocated Norwegian women who had suffered recurrent abortions to receive “tender loving care,” including psychological support and single-provider care, or to receive routine prenatal care during their pregnancies on the basis of their proximity to a hospital. The “tender loving care” group had three times the incidence of live births than that of the routine care group. Retrospective analysis of the data from the Resource Mothers Program for (mainly) black American adolescents also provided evidence for a powerful effect of social support (13). In this program, women who received regular visits in pregnancy from neighborhood Resource Mothers, who aimed at providing education and support, had 50% fewer infants who were small for their gestational age than did matched controls. Finally, the effect of social support in labor was demonstrated in an innovative study in Guatemala (18). Women in labor were randomly selected to be attended by a supportive lay companion or not. The women who received support had a significantly lower incidence of cesarean sections and intravenous oxytocics than the women who had no such support. This study provided good evidence for a beneficial effect of social support in labor.

As mentioned earlier, preterm birth and low birth weight have been the targets of many social support interventions. In fact, principally on the basis of encouraging reports from Hagenau, France (29), and San Francisco (14), preterm birth prevention projects were established in the United States with psychological support and single-provider care as integral components (15). Both of the promising reports were retrospec-
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Table 1. Effects of Social Support on Preterm Birth in the Pregnancy Home Visiting Programme (4)

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<tr>
<th>Outcomes</th>
<th>Supported group</th>
<th>Controls</th>
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<tr>
<td>Preterm birth</td>
<td>126 (12.8%)</td>
<td>147 (14.9%)</td>
</tr>
<tr>
<td>Other outcomes</td>
<td>885 (87.2%)</td>
<td>839 (85.1%)</td>
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Odds ratio 0.84 (95% CI = 0.65–1.09).

Various comparisons of the outcomes of pregnancies in women who had supportive care with the outcomes in women who had not received socially supportive care, having had their babies either elsewhere in France (29) or in another Californian hospital (14). Obviously, the possibility of bias existed in these comparisons, and a methodology more likely to be free of bias, such as a randomized controlled trial, was proposed to test the hypothesis.

The randomized controlled trials of the effects of social and psychological support during pregnancy have been reviewed previously (10). No one trial had the statistical power to exclude an effect on preterm birth, but a meta-analysis of the trials that reported preterm birth as an outcome, totalling 2,643 participants, provided no evidence for any effect, with a typical odds ratio of 1.06 (95% CI 0.82–1.36) (10). The supportive interventions tested included lay family workers who participated in household chores and home-visiting midwives, but beneficial effects were fairly consistently absent. These findings are supported by a recent trial of 1,970 Australian women with previous preterm births or other perinatal tragedies who were randomly allocated to receive or not receive social support in addition to their normal prenatal care (4). The support was provided by home-visiting midwives who avoided gratuitous advice. The odds ratio for a preterm birth was found to be 0.84 (95% CI 0.64–1.09) (Table 1). Inclusion of these data into the previous meta-analysis obviously provides more evidence for no effect, with a typical odds ratio even closer to unity. It seems reasonable to conclude that social support interventions are unlikely to significantly reduce preterm births.

The data on other physical outcomes of pregnancy such as low birth weight, length of labor, and instrumental or operative deliveries also provide evidence of no true physical effects of support (10).

The meta-analyses of the trials of social support interventions did show psychological benefits for the women who received the support, particularly regarding enjoyment of pregnancy and such postnatal benefits as breastfeeding and feeling confident with their babies (10). It is possible, however, that expectation bias may have contributed to these observed differences as blinding could not be achieved. Nonetheless, these findings of a benefit are consistent with those previously quoted for psychological effects of support in pregnancy (5,27).

CONCLUSIONS ABOUT SUPPORT

The evidence from controlled trials points out some beneficial psychological effects of supportive interventions during pregnancy, but does not point out any physical benefits. These findings appear consistent with the observational reports of better outcomes in women who receive support. There are several potential explanations for this inconsistency.

First, it may be that a true effect of support exists, but that the trials have not had the statistical power to identify it. This criticism is certainly true of every individual
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trial, but the result of the meta-analysis and the consistency of the trial results, with no clinically important differences between groups, make such a type II error less likely.

Secondly, it is possible that the interventions used were not supportive enough and that other interventions would have been effective. This argument is frequently used by clinicians who believe in a technology that has been found to be ineffective in a controlled clinical trial. A previous example in obstetrics is an argument commonly put forward regarding electronic fetal heart rate monitoring, which was not found to improve infant outcomes in several randomized controlled trials. Attempts were made to discredit the results by arguing that the interpretation of the tracings would have led to a benefit “in my hands.” It is difficult to refute such an allegation when there are no data for comparison. With respect to social support, the only trial that measured both social support and infant outcomes found no differences between supported and unsupported groups on a valid social support instrument. However, even if all of the support interventions tested in the trials were inadequate, the lack of effect of any of them, despite their variety, suggests that an effective intervention may indeed be very difficult to find.

The most likely explanation for the lack of an observed effect of social support interventions on the physical outcomes of pregnancy is that there is no effect. This explanation is unpalatable to those who firmly believe that love and support in pregnancy must be beneficial.

Even if it is accepted that there is no overall effect from social support interventions, it will probably be argued that certain subgroups of women may benefit from additional support in pregnancy. For example, in the largest study of support in pregnancy, it was hypothesized before the trial began that the effect of the intervention would be strongest in those women of the lowest social class and with the least existing support, but these hypotheses were not supported by the results (4). Contrary to expectations, the greatest effect was seen in professional women (Table 2), and there was no difference in effect according to existing support levels (Table 3). Those who firmly believe in social support may feel that this subgroup result justifies such a program for professional women; however, the finding only provides a hypothesis for further testing. Such struggles to find some benefit in some subgroups of a study sample are common occurrences when a clinical trial result fails to confirm preconceived expectations. Stallones (31) described such behavior from the authors of the MRFIT trial. He stated, “after a building collapses, we have a right and a responsibility to hunt through the rubble for survivors, but survivors are not evidence that the building did not fall.”

It does appear that support in pregnancy results in psychological benefits to women during pregnancy and labor and at least up to 6 weeks postnatally. These effects are highly desirable and should not be ignored. It is now up to the health care planners of the future to decide whether these benefits outweigh any costs or adverse side effects of introducing a program of additional support for pregnant women. As the monetary value to society of the psychological benefits is difficult to calculate, comparison with the cost of setting up and running a support program will be difficult.

It seems likely that there are few, if any, adverse effects on women and their pregnancies from support interventions. However, in the one study of support with reasonable statistical power, there were twice as many extremely preterm births from 20–27 weeks of gestation in the supported group (n = 28) than in controls (n = 14) and there was a nonsignificant excess of perinatal deaths in the supported group (n = 30) compared with controls (n = 20) (4). Previous research has identified other potential adverse effects related to support in pregnancy. Such support may create dependency and even lower self-esteem in its recipients (12). This certainly may be the case where
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Table 2. Effect of Social Support on Preterm Birth in the Pregnancy Home Visiting Programme within Social Classes (4)

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<thead>
<tr>
<th>Social class</th>
<th>Odds ratio for preterm birth (95% CI)</th>
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<tr>
<td>Professional</td>
<td>0.59 (0.36-0.96)</td>
</tr>
<tr>
<td>Clerical</td>
<td>1.00 (0.64-1.56)</td>
</tr>
<tr>
<td>Manual</td>
<td>0.96 (0.59-1.56)</td>
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Table 3. Effects of Social Support on Preterm Birth in the Pregnancy Home Visiting Programme by Levels of Existing Support (4)

<table>
<thead>
<tr>
<th>Support level</th>
<th>Odds ratio for preterm birth (95% CI)</th>
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<tbody>
<tr>
<td>Live with partner</td>
<td>0.76 (0.57-1.02)</td>
</tr>
<tr>
<td>Live with other adults</td>
<td>1.48 (0.49-4.49)</td>
</tr>
<tr>
<td>Live alone</td>
<td>1.18 (0.43-3.21)</td>
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the support focuses on instrumental aspects, particularly gratuitous advice. Support services, if adequately provided, also place stress on the providers (9), and adequate support networks need to be provided for them in their turn.

The failure of social support interventions does not mean that social support in pregnancy is not useful. Probably “artificially constructed” support can never mimic the intangible effects of support that come about by natural processes, be they within families or in other networks and relationships.

REFERENCES
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