Authors' objectives
To describe recent research assessing the outcomes of education about childbirth and to identify future research needs.

Searching
MEDLINE, CINAHL, PsycINFO and Sociological Abstracts were searched from 1995 to 2001 for studies published in the English language; the keywords were listed. In addition, reference lists were checked.

Study selection
Study designs of evaluations included in the review
Qualitative and quantitative studies were eligible for inclusion.

Specific interventions included in the review
Studies of childbirth education classes were eligible for inclusion. Studies of specific strategies for coping were excluded. The included studies generally provided little information about the content of the classes. In the included studies, the classes were taught (where reported) by instructors certified as Lamaze Certified Childbirth Educators (2 studies), registered nurses, midwives and unspecified health professionals. Where reported, the studies were set in hospitals and in the community.

Participants included in the review
The inclusion criteria for the participants were not specified. Most of the included studies used convenience samples; three studies used purposive sampling. The classes were provided to women or couples from early pregnancy to postnatally.

Outcomes assessed in the review
Studies that sought to evaluate effectiveness, and studies that considered the influence of participants, setting and agencies as described in the Interactive Quality Health Educations Outcomes Model (see Other Publications of Related Interest), were eligible for inclusion. The review categorised the outcomes as follows: health promotion behaviours; self-care; perceptions related to birth; class curriculum; or impact on coping.

The studies measured outcomes using questionnaires developed by the researchers, at interview, or using specified instruments. The specific instruments were Fender's Health Promotion Lifestyle Profile, the Humenick and Bugen's Labor and Delivery Evaluation Scale, Humenick and Bugen's Labor Agency Scale and Delivery Agency Scale, Simmons-Tropea's Labor Agency Scale, the Spielbergers' State-Trait Anxiety Inventory and Pender's Health Promotion Lifestyle Profile.

How were decisions on the relevance of primary studies made?
The author did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
Validity was not formally assessed, although some aspects of validity were discussed in the text. Such aspects included: the use of a theoretical framework underlying the study; the methods used to select the sample; study design; the validity of the methods used to assess the outcomes; and the methods used for analysis.

Data extraction
The author did not state how the data were extracted for the review, or how many reviewers performed the data extraction. The data extracted included study design, underlying theoretical framework, sample size, country, methods
used for data collection and results.

**Methods of synthesis**

**How were the studies combined?**
The characteristics of the included studies were summarised in the text of the review. The study findings were grouped by outcome and a narrative synthesis was presented.

**How were differences between studies investigated?**
Differences between the studies were discussed with respect to aspects of validity and the study setting.

**Results of the review**

Twelve studies (1,219 participants) were included: 1 pre-test post-test study (35 participants), 3 qualitative studies (228 participants) and 8 descriptive studies (956 participants).

Health promotion behaviours (3 studies): all 3 studies suggested positive outcomes for education classes. However, research methods differed among the studies. One study (16 women at classes compared with 44 not at classes) found that women attending classes scored significantly higher on self-actualisation, health responsibility, exercise, nutrition and interpersonal support than women not attending classes. One descriptive study (291 women) found the greatest changes were for communication with partner, relaxation, and confidence for labour and birth. One qualitative study (214 participants) found significant changes in preparation for labour and birth, breast-feeding and after delivery, but not for nutrition.

Self-care (2 studies): none of the studies provided evidence that potential categories of self-care had been identified. One descriptive study (59 participants) found little effect of classes on decision-making about breast-feeding, but found that classes influenced decisions about analgesia. One qualitative study (7 participants) found no consistent results for enabling or non enabling for birth.

Perceptions related to birth (4 studies): the studies used a variety of outcomes and methods of analysis, and rarely used validated tools for measuring the degree to which the classes helped women deal with childbirth. One descriptive study (45 women) found no correlation between classes and perceived control, satisfaction with birth experience, perception of pain, or use of analgesia. One descriptive study (119 participants) found the only difference between women and their partners was that fathers had a more positive perception of the first stage of labour. One qualitative study (7 women) found participants in classes were more confident about the birth experience. One descriptive study (121 women) found that 66 to 81% of women felt fairly or very confident about facing childbirth after classes.

Class curriculum (2 studies): the studies rarely evaluated the content of the classes. One descriptive study (127 women) found that participants favoured classes but wanted more information on parenting. One descriptive study (134 participants) found that educators and parents differed in their priorities for class content.

Impact on coping (1 study): 1 pre-test post-test study (35 women) found a significant difference from pre- to post-test. The direction of the effect was not reported in the review.

**Authors' conclusions**
There was insufficient evidence to draw definitive conclusions about the effectiveness of childbirth education classes.

**CRD commentary**
The review question was clear in terms of the intervention and outcomes. The inclusion criteria were broadly defined in terms of study design. Several relevant sources were searched and the search terms were stated. By limiting the included studies to those in English, the author might have omitted some relevant studies. No attempt was made to locate unpublished studies, thus raising the possibility of publication bias. The methods used to select the studies, assess validity and extract the data were not described; hence, efforts made to reduce errors and bias cannot be judged. Validity was not formally assessed, but some of the methodological limitations of the studies were discussed in the text.
Given the small number of studies and differences among the studies, a narrative synthesis was appropriate. The evidence presented appears to support the author's conclusion.

Implications of the review for practice and research
Practice: The author did not state any implications for practice.

Research: The author stated that future research should take account of differences in client motivation, the philosophy and attitudes of birth attendants, type of obstetric care and other factors that may influence women's perceptions of childbirth, and that there is a need to define and categorise these variables. In addition, research should assess health-related outcomes using defined measures and develop the standardisation or categorisation of childbirth education. The author further stated that there is a need for a meta-analysis of studies published in the last 20 years.

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.