A meta-analysis of the effects of psychoeducational care in adults with hypertension

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Authors' objectives
To investigate the effects of psychoeducational care (patient education and psychosocial support) on blood pressure, knowledge about hypertension, medication compliance, weight, compliance with health care appointments and anxiety.

Searching
CINAHL (from 1983 to 1992), MEDLINE (from 1966 to 1993), Dissertation Abstracts International (from 1861 to 1992) and PsycLIT (from 1974 to 1993) were searched. Theses and dissertations were searched for by contacting 138 schools of nursing that had graduate programmes accredited by the National League for Nursing. An additional list of all dissertations completed by nurses was obtained from University Microfilms International. Reference lists of relevant studies and review papers were examined to identify additional studies.

Study selection
Study designs of evaluations included in the review
Experimental, quasi-experimental or pre-post single group. Subjects in all treatment groups were recruited from the same setting, and each trial had at least five subjects in each treatment group.

Specific interventions included in the review
Education, behavioural monitoring, relaxation, relaxation with biofeedback, psychosocial, multiple types of content with relaxation, multiple types of content without relaxation.

Participants included in the review
The average age of the patients was reported as 40 to 59 years in 59 of the 69 studies. Of the 35 studies reporting ethnicity, 89% included individuals of African decent. In 17 studies individuals of African decent constituted half or more of the sample. 83% of the 65 studies reported pharmacological management of subjects' hypertension, 54 included subjects on antihypertensives. 11 studies included only subjects not on antihypertensives.

Outcomes assessed in the review
The outcomes assessed were blood-pressure, knowledge, medication compliance, weight, compliance with health care appointments, anxiety.

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

Assessment of study quality
Sample size, direction and magnitude of the treatment effect, date of publication, publication site, professional status of author, randomisation, presence of a control group, age and ethnicity of participants, pharmacological management of the patients. The authors do not state how the papers were assessed for validity, or how many of the authors performed the validity assessment.

Data extraction
Study characteristics, sample size, treatment, setting and outcomes were all extracted from the primary studies. Outcomes were coded according to the actual measure, sample size, direction and magnitude of the treatment effect, and measurement of subjectivity. Interrater reliability was tested by assessing a random sample of 20% of the studies, which were coded by a research assistant.
Methods of synthesis
How were the studies combined?
The standardised mean difference between treatment and control groups measured in standard deviation units was calculated (effect size \( d \)). Each effect size was weighted according to sample size.

To prevent studies with a small sample size introducing bias (small studies tend to overestimate the effect-size), the effect size of these studies was multiplied by a coefficient.

Further, detailed statistical information is provided in the authors’ full text.

How were differences between studies investigated?
The homogeneity statistic (\( Q \)) was used to test the hypothesis that all effect size values belonged to a single population.

Results of the review
A total of 102 studies were included. However, except for analysis of overall treatment effectiveness based on direction of treatment effect, analyses were restricted to 88 studies from which it was possible to code sample size and determine at least one effect-size.

89 studies addressed psychoeducational care on blood pressure, 30 studies assessed knowledge about hypertension, 23 studies evaluated medication compliance, 16 studies addressed weight, 11 studies assessed compliance with health care appointments and 6 studies evaluated the effect on anxiety.

Blood-pressure (all): effect size=0.58 (95%CI: 0.47, 0.70; \( Q \) 163) Fail-safe N 806.

Blood pressure (random assigned only): effect size=0.44 (95%CI: 0.31, 0.57; \( Q \) 75) Fail-safe N 351.

Knowledge: effect size=1.03 (95%CI: 0.75, 1.32; \( Q \) 87) Fail-safe N 431.

Medication compliance: effect size=0.74 (95%CI: 0.41, 1.07; \( Q \) 226) Fail-safe N 235.

Weight: effect size=0.53 (95%CI: 0.13, 0.93; \( Q \) 67) Fail-safe N 134.

Compliance with health care appointments: effect size=0.47 (95%CI: 0.25, 0.69; \( Q \) 6) Fail-safe N 59.

Anxiety: effect size=0.57 (95%CI: 0.22, 0.93; \( Q \) 7) Fail-safe N 62.

(Fail-safe N is the number of additional studies required that did not favour treatment to overturn the effect sizes stated).

Authors’ conclusions
Several forms of psychoeducational care are effective treatments in reducing blood pressure among adults with hypertension, and should be considered as appropriate interventions for nurses caring for outpatient adults with hypertension. Education has a large effect on knowledge, and a positive effect on compliance with health care appointments, but its effect on knowledge tends to diminish with time.

Both monitoring and education (from subgroup analysis for which the results are not stated) have a positive effect on compliance with medication. However, conclusions cannot be drawn about either the effects of psychoeducational care on weight and anxiety or the effect of relaxation on blood pressure.

CRD commentary
The search strategy appears to be comprehensive, although foreign language papers may have been excluded.

The inclusion and validity criteria are clearly stated and the exploration of factors that might compromise the validity of
the analysis is thorough and informative. It would have been useful to include more individual study details and to have expanded on what each intervention involved.

The authors’ conclusions appear valid from the literature presented.

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