ARTICLE:

- **Citation:** Johnman et al, *Quality of life following percutaneous coronary interventions in octogenarians: a systematic review.* Heart 2013; 99: 779-784
- **Country:** UK
- **Funding Sources:**

PURPOSE:

- **Research Question(s):** What is / are the primary questions being addressed by this study? Usually found just before the methods.
What is the effect of PCI on quality of life for octogenarians?

- **Hypothesis:** What is the anticipated outcome or alternatively, the null hypothesis (there will be no difference between groups).
PCI will improve quality of life in octogenarians
Null: there will be no difference in quality of life prior to compared to after PCI in this age group. Alternatively: there will be no difference in quality of life between groups treated with PCI and those treated with medical management alone.

DESIGN:

- **Study Design:**
  - Major types of quantitative designs: Descriptive (case / series) Correlational (prospective / retrospective cohort), Quasi-Experimental, and Experimental (Randomized Controlled).
  - Systematic literature review. NOT a meta analysis
  - Some of the studies reviewed were prospective, some were retrospective, all were observational
  - None

- **Dependent / outcome Variable(s):** What is the variable of interest / outcome being studied.
Quality of life

- **Independent / research Variable:** What is the variable that is modified among groups?
Depending on the study reviewed: age, PCI vs medical manangement, NSTEMI vs STEMI vs unstable angina vs stable angina
SETTING / SUBJECTS:
- **Research Setting**: Inpatient / outpatient, rural / urban, academic / community, EM / non-em, etc.
  
The setting of the studies varies, primarily academic
- **Subjects**:
  - **Study population**: Who was studied (eg: all adults presenting with chest pain, all children with wheezing, etc).
    
    Again there is significant variation. Overall the average age of study subjects is aprx 82.
    
    The condition treated ranges on the spectrum from stable angina to acute STEMI
  
  - **Inclusion / Exclusion criteria**: Are there any important inclusion or exclusion criteria, especially those that may affect generalizability.
    
    Studies were included in this review that met the strict search criteria outlined in the methods section. They had to study the specific age group in question, PCI, measure quality of life in some form.
    
    Inclusion criteria for the subjects of each study reviewed varied widely, making this a very heterogeneous study population.
  
  - **Number (control / intervention groups)**: Number of subjects in each group.
    
    Total of 700 patients.
    
    - **Demographics**: Age, sex, race, etc.
      
      >80 years old, mean over entire review was 82.9 yo
    
    - **Attrition**: Did patients exit the study or were patients lost to follow up.
      
      Full data not reported, there was significant attrition from some of the included studies.

METHODS:
- **Interventions**: What, if any, interventions were performed among the study groups.
  
  Some studies reviewed measured PCI vs CABG as the intervention, other studies compared different age groups to determine if PCI in elderly groups had as positive effect as it does in younger groups
  
  - **Study Groups**: What were the various study groups (eg: control / placebo, intervention 1, intervention 2, etc)
    
    See above
  
  - **Instruments**: What devices, special equipment, surveys, rating scales, etc. were utilized.
    
    Various quality of life measuring tools. Many that are externally validated tools including: SF-36, SAQ, EQ5D, RAND-36, WHOQOL BREF,. Others used a quality of life subjective 0-10 scale, another used a scale of excellent, good, fair, poor
• **Data Collection:** Who collected data? What was their training? Was there consistency among data collectors? Were there changes to data collection / study protocol during the period of the study.

The lead author is a Doctor trained in general practice, specializing in reproductive health, who then got a degree in public health and teaches public health at university.

**DATA ANALYSIS:**

• **Level of Data:**
  - Categorical (two or more categories without order, (ie: male / female)
  - Ordinal (hierarchical categories without set spacing, (ie: education level, death / discharge)
  - Interval (continuous data with set spacing, (ie: age, weight, hemoglobin)

  Again, heterogenous, some is categorical (old vs young), some is ordinal (QOL survey results), some is interval (age)

• **Statistics Used:** What type of statistical tests were utilized (eg: T-test, ANOVA, regression analysis).

  Complex statistical analysis could not be performed on the studies reviewed due to the heterogeneity of the interventions, outcomes, and data presented in the individual articles.

• **What, if any, variables were controlled for?** Do the results adjust for confounding variables?

None

**RESULTS:**

• **Brief answers to research questions:** What were the conclusions made by the authors? Do they answer the original research questions? Do you think their conclusions are valid based on the data reported?

  The conclusion is made that PCI does improve quality of life in octogenarians. This is supported by the data presented, although only 5 of the 11 studies cited did measure quality of life before intervention.

• **Additional findings:** An any additional findings other than the primary research questions discussed? Were these expected or unexpected based on the study design?

None

• **Other possible explanation for findings:** Are their other possible / probable explanations for the results other than those presented by the authors? Do the results correspond with the purpose of the study? Consider: sample size issues, measurement issues (did they measure the right outcomes?), attrition, treatment integrity (was the intervention always delivered exactly the same way?), and other issues you identify.

  This depends on the results in question. For the studies that show PCI is better than CABG, there are many factors that go into the decision to do CABG vs PCI, the studies are small, and they are all observational. There are many confounding factors. Demonstrating this was not the purpose of the review.

  For the finding that PCI improves QOL in octogenarians as much as it does in younger patients, lack of a control group to compare the intervention makes this a difficult
conclusion to make. The studies that do have a control group show improvement with PCI.

- **Limitations:** Are their important limitations identified by the authors? Do you see any other important limitations? Do these limitations significantly alter the conclusion or the applicability of the study?

Heterogeneity of the populations, level of disease are the greatest weaknesses. Publication bias is an important limitation for a study of this nature.

**IMPLICATIONS FOR PRACTICE:**

- **Applicable to this clinical practice:** Is the study population generalizable to the population likely to be affected by this intervention / outcome in your clinical practice? If not, what setting may this be applicable to?

Some of the specific studies in this review are generalizable. Taken as a whole, the information gleaned from this review is not readily generalizable given the large heterogeneity of the studies included.

- **Feasible (cost, resources, etc):** Is this an intervention that would be reasonable to institute in clinical practice? Are instruments / medications available? Does the study adequately assess risks and unforeseen outcomes? Is the intervention cost / resource effective? Does the study account for cost / benefit? Are there more effective treatments available?

PCI is a feasible intervention.

- **Clinically Relevant:** Is this intervention likely to make a clinically significant impact on your patients if instituted? That is, some interventions may show statistically significant changes without making an impact that is clinically important.

Yes.

**LEVEL OF EVIDENCE / DECISION FOR USE:**

- Background Consider Replication Ready for use

- **Level of Evidence:**
  - Ia Evidence obtained from meta-analysis of randomized controlled trials
  - Ib Evidence obtained from at least one RCT
  - IIa Evidence obtained from at least one well-designed controlled study without randomization
  - IIb Evidence obtained from at least one other type of well-designed quasi-experimental study
  - III Well-designed non-experimental studies
  - IV Expert committee reports, opinions of experts