

iCAHE JC Critical Appraisal Summary

Journal Club Details

Journal Club	Western Therapy Service
JC Facilitator	Lorien Coff
JC Discipline	Occupational Therapy

Clinical Scenario

Is there a relationship between prolonged sitting and mortality?

Review Question/PICO/PECO

P	Individuals aged 45 and older
E	prolonged sitting
C	NA
O	mortality

Article/Paper

Vander Ploeg, H Chey, T, Korda ,J, Banks ,E ,Bauman, A 2012 'Sitting time and all –cause mortality risk in 222497 Australian adults' , *ARCH INTERN MED* , 172(6).

Please note: due to copyright regulations CAHE is unable to supply a copy of the critically appraised paper/article. If you are an employee of the South Australian government you can obtain a copy of articles from the [DOHSA librarian](#).

Article Methodology: Cohort study

Journal Club Meeting on: 25 May 2012



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Ques No.	Yes	Can't Tell	No	Comments
1	✓			<p>Was the purpose stated clearly?</p> <p>The study explored the dose-response relationship between total sitting time and all-cause mortality in individuals 45 years and older. The authors used the data from a prospective cohort study - 45 and Up study.</p>
2	✓			<p>Was relevant background literature reviewed?</p> <p>Yes and appropriate justification for conducting this study was demonstrated.</p>
3	✓			<p>Describe the study design. Was the design appropriate for the study question? (e.g., for knowledge level about this issue, outcomes, ethical issues, etc.)</p> <p>The study used a cohort (observational) research design. A cohort study follows prospectively over time one or more populations (e.g. 45 year old adults) to determine which individual characteristics (risk factors, e.g. sitting time) are associated with the development of a disease or outcome (e.g. mortality). Therefore, this research design is appropriate to the current study.</p>
4			<p>✓</p> <p>✓</p>	<p>Sample size N= 222497</p> <p>Was the sample described in detail?</p> <p>The study reported that participants were 45 years and older but no other characteristics were described in the paper.</p> <p>Was the sample size justified?</p> <p>Power calculation was not undertaken; hence would be difficult to determine if there were adequate participants in the study.</p>

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5	✓		<p>What outcome measures were used and what is the frequency of them being used?</p> <p>Mortality was the outcome variable and information about it was obtained from the New South Wales Registry of Births, Deaths and Marriages.</p> <p>Sitting time was the exposure variable, and this was assessed using the question “About how many hours in each 24-hour day do you usually spend sitting?”</p> <p>The potential confounding variables were sex, age, educational level, urban/rural residence, physical activity, smoking, status, body index, self-rated health and disability.</p> <p>Were the outcome measures reliable? Were the outcome measures valid?</p> <p>The question used for the exposure variable was similar to the sitting measure of a commonly used questionnaire – International Physical Activity Questionnaire which has shown acceptable reliability and validity.</p> <p>Total physical activity was assessed with the Active Australia Survey; this has acceptable reliability and validity. BMI was calculated from self-reported height and weight, which has shown excellent agreement with measured BMI categories within a subsample of the study. Self-rated overall health was based on a single question on a 5-point scale from the Short Form Health Survey, which has known validity and reliability.</p>
7	✓	✓	<p>Were the results reported in terms of statistical significance?</p> <p>Yes. The statistical analysis was done using the commercially available statistical software.</p> <p>The Cox proportional regression model analysis was adjusted and used for other outcomes like sex, age, educational levels, marital status, urban or rural residence, BMI, physical activity and smoking status.</p> <p>The participants with any incomplete values for the outcomes were assigned a separate category in order to maximise the statistical power.</p> <p>All the Cox regression results were presented in terms of 95% CIs</p> <p>The results were presented in terms of descriptive statistics and hazard ratios with confidence intervals.</p> <p>Clinical importance was reported?</p> <p>Yes</p> <p>Drop outs were reported?</p> <p>NA</p>

8	✓		<p>The conclusions were appropriate given the study methods and results?</p> <p>The main result</p> <p>Prolonged sitting was considered a risk factor for all cause mortality irrespective of the physical activity done. Shorter sitting time and increased physical activity were found to prevent all cause mortality not only in healthy people but also in those with cardiovascular disease, diabetes, overweight and obesity.</p> <p>Sitting time duration was greater in younger groups, those with high educational levels, higher BMI, lower physical activity and poorer self rated health.</p> <p>Limitations to the study</p> <ul style="list-style-type: none"> • The study had a short mean follow up time of 2.8 years resulting in confounding effect of the occult disease at baseline • Self-reported measures were used for the exposure variables which may likely increase the potential for measurement errors and attenuate the hazard ratios
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