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Letter to the Editor

Reply to: Poor prognosis of female out-of-hospital cardiac arrest survivors: A risk assessment



We thank Dr. Kawada for their interest in our study investigating the long-term prognosis of out-of-hospital cardiac arrest (OHCA) survivors.¹ Whether sex-differences in the long-term functional recovery and health-related quality of life (HRQoL) outcomes of OHCA survivors are attenuated by age is an important issue which we agree is worthy of further investigation. In our study however, we found that the effect of sex was independent of age (i.e. interaction terms between age and sex were not significant in our models) suggesting that female OHCA survivors across all age groups consistently reported poorer 12-month outcomes according to the Glasgow Outcome Scale–Extended (GOSE), the EuroQoL-5D, and 12-Item Short Form health survey (SF-12). Fig. 1 also shows that more women compared to men reported problems with the SF-6D health dimensions (including physical function, mental health, role limitation, and social functioning), and this was consistent across age group (<65 years vs. ≥65 years).

Importantly, our models also adjusted for arrest factors which could confound the effect of sex on outcome, particularly among the older age groups. For instance, a lower proportion of female survivors experienced an initial shockable arrest compared to men, but this difference was larger in patients aged ≥65 years (68.0% vs. 84.5%, respectively) compared to patients aged <65 years (78.3% vs. 89.0%, respectively). Variation in these arrest characteristics are known to have an impact on the long-term prognosis of OHCA survivors.² Indeed, differences in arrest characteristics could extend to the underlying aetiology of arrest, and we found that female survivors also had a higher proportion of non-cardiac causes of OHCA compared to men (14.7% vs. 6.4%). Although arrest aetiology was not a significant predictor of achieving good functional recovery at 12-months in our study, and others,² our data is limited to the Utstein-style description of arrest aetiology which is determined using prehospital care records.¹ As such, a study examining the impact of arrest aetiology derived from hospital medical records may also be warranted.

Finally, we acknowledge that research investigating the HRQoL of OHCA survivors' remains in its infancy and only a small number of generic HRQoL tools have been examined to-date. On the basis of findings from a recent systematic review³ it is not possible to recommend one HRQoL tool over another in OHCA survivors, owing to a lack of evidence and relevance supporting the use of the measurement properties. Although the 36-Item Short Form survey is a tool that provides a detailed assessment of HRQoL,³ it is very time-consuming to administer and often yields similar conclusions

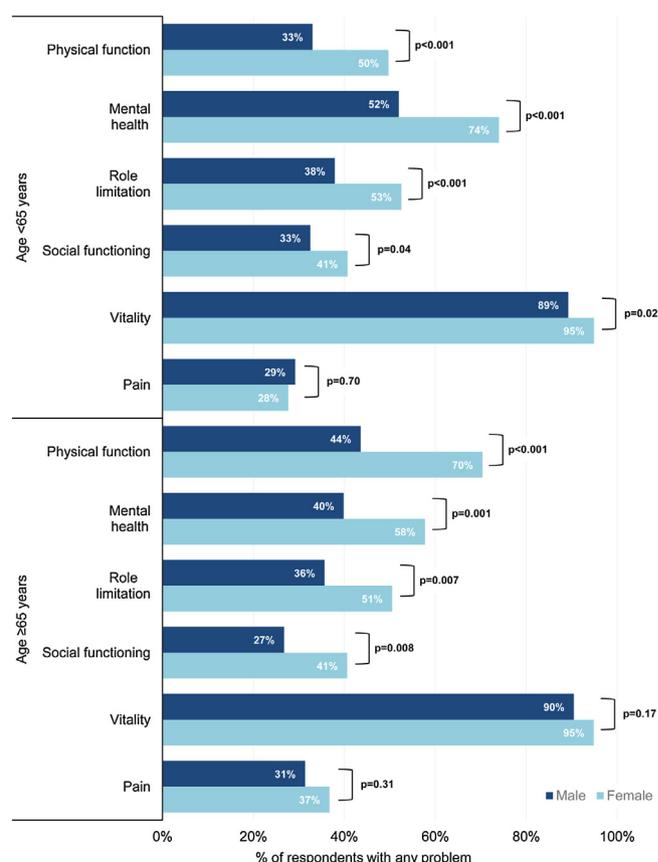


Fig. 1 – Sex differences in the SF-6D health dimensions for 12-month responders, stratified by age group.

compared shorter iterations of the health survey such as the SF-12.⁴ A recent validation study also indicates that the measurement properties of the GOSE, SF-12 and SF-6D provide good descriptions of the functional and HRQoL outcomes of OHCA survivors.⁵ Importantly, the effect of sex on our measures of functional and HRQoL outcomes were consistent across all instruments in our study, indicating a high-level of agreement.

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Conflicts of interest

None declared.

REFERENCES

1. Nehme Z, Andrew E, Bernard S, Smith K. Sex differences in the quality-of-life and functional outcome of cardiac arrest survivors. *Resuscitation* 2019;137:21–8.
2. Smith K, Andrew E, Lijovic M, Nehme Z, Bernard S. Quality of life and functional outcomes 12 months after out-of-hospital cardiac arrest. *Circulation* 2015;131:174–81.
3. Haywood KL, Pearson N, Morrison LJ, Castren M, Lilja G, Perkins GD. Assessing health-related quality of life (HRQoL) in survivors of out-of-hospital cardiac arrest: a systematic review of patient-reported outcome measures. *Resuscitation* 2018;123:22–37.
4. Muller-Nordhorn J, Roll S, Willich SN. Comparison of the short form (SF)-12 health status instrument with the SF-36 in patients with coronary heart disease. *Heart* 2004;90:523–7.
5. Andrew E, Nehme Z, Bernard S, Smith K. Comparison of health-related quality of life and functional recovery measurement tools in out-of-hospital cardiac arrest survivors. *Resuscitation* 2016;107:57–64.

Ziad Nehme^{a,b,c,*}

^aDepartment of Research and Evaluation, Ambulance Victoria, Doncaster, Victoria, Australia

^bDepartment of Community Emergency Health and Paramedic Practice, Monash University, Frankston, Victoria, Australia

^cDepartment of Epidemiology and Preventive Medicine, Monash University, Prahran, Victoria, Australia

Emily Andrew^{a,b}

^aDepartment of Research and Evaluation, Ambulance Victoria, Doncaster, Victoria, Australia

^bDepartment of Epidemiology and Preventive Medicine, Monash University, Prahran, Victoria, Australia

Stephen Bernard^{a,b,c}

^aDepartment of Research and Evaluation, Ambulance Victoria, Doncaster, Victoria, Australia

^bDepartment of Epidemiology and Preventive Medicine, Monash University, Prahran, Victoria, Australia

^cThe Alfred Hospital, Victoria, Australia

Karen Smith^{a,b,c}

^aDepartment of Research and Evaluation, Ambulance Victoria, Doncaster, Victoria, Australia

^bDepartment of Community Emergency Health and Paramedic Practice, Monash University, Frankston, Victoria, Australia

^cDepartment of Epidemiology and Preventive Medicine, Monash University, Prahran, Victoria, Australia

* Corresponding author at: Centre for Research and Evaluation, Ambulance Victoria, 375 Manningham Road, Doncaster, Victoria 3108, Australia.

E-mail address: ziad.nehme@ambulance.vic.gov.au (Z. Nehme).

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