

## The state of the science on women's disposition decisions about electively frozen surplus eggs



The article “Disposition intentions of elective egg freezers toward their surplus frozen oocytes: a systematic review and meta-analysis” provides a comprehensive report about current research on the disposition intentions of women who electively froze eggs, were investigating elective egg freezing, or were of reproductive age (1). The investigators integrate 17 separate research projects to provide information on what is known about women's decisions about the disposition of electively frozen eggs and the underlying psychosocial determinants of these decisions. This article is an important contribution to the field because the systematic review and meta-analysis are well-designed and offer directions for future research and implications for clinical practice. The review is timely, too, because many women are nearing the end of cryopreserved egg storage limits in countries such as Australia, where the review was completed.

One of the challenges of completing a systematic review, especially in a new field such as elective oocyte cryopreservation, is synthesizing the disparate designs, samples, and methodologies across the studies that are reviewed (2). To increase rigor, the investigators have implemented several methodologic strategies. For example, systematic reviews, protocols, case studies, commentaries, and editorials were excluded to maximize findings from a sample comprising empirically based research studies. The investigators do incorporate abstracts that allow a more complete report on the state of knowledge in the field. Notably all but 2 of the included abstracts later resulted in research articles, which also were included in the review. The additional step that the investigators took to contact 13 authors by email and to request additional data or information, which 10 of the authors provided, enhances the rigor of the review. Another important strategy is the exclusion of studies that were conducted with women who froze eggs for medical reasons such as before cancer treatment, where women have sociodemographic and motivational differences, potential reduced number of eggs stored, and differing disposition choices such as reduced potential to donate to other women, than elective egg freezers. By incorporating appropriate statistical methods (e.g., random effects logistic regression), the investigators achieve a meta-analysis regarding the proportion of women who selected the various disposition options (i.e., donate to others, donate to research, discard, unsure). However, the heterogeneity noted between the studies complicated data pooling and analysis. Although the heterogeneity does complicate understanding, it provides more accurate information about what is known regarding women's intended disposition decisions.

To their credit, the investigators categorize the final sample of 17 studies into 3 participant groups: 8 studies of

women who were actual egg freezers and had elected to freeze and store their eggs, 4 studies of women who were potential elective egg freezers and who were investigating elective egg freezing or were about to freeze their eggs, and 5 studies of women of reproductive age who were in the community and were aged  $\geq 18$  years. Sorting the studies into the 3 groups on the basis of the women's proximity to undergoing elective egg freezing and the women's proximity to finalizing their surplus egg disposition outcome at the time of the research allows for comparisons across the 3 groups and provides a scientifically stronger review with more clinically relevant findings. This analytic strategy is significant because experts in decision science have long understood the proximity to the decision itself is paramount to understanding actual decisions and behaviors (3, 4). More recent work, albeit in ethical consumerism, has shown an even wider gap between what people say they will do and what they actually do when decisions involve an ethical component (5). Furthermore, a key finding of the review was the lack of research that reported on women who had made actual disposition decisions about the outcome of their electively frozen eggs, adding further rationale to the analytic strategy employed by the investigators. To mitigate the difficulties inherent in understanding research where no actual disposition decisions about outcome is reported, the investigators clearly communicate the state of the science is on women's “intentions” vs. women's actual “decisions” and focus the discussion on the sample comprising women who were actual elective egg freezers and the women who were investigating or nearing elective egg freezing (i.e., “potential” elective egg freezers).

To provide context, the investigators discuss their review findings with similar research in the medical assisted reproduction field—investigations surrounding disposition decisions about surplus embryos. Although there are differences between disposition decisions about surplus embryos and electively frozen eggs, they point out that the underlying complexity in disposition decisions is similar for people with surplus embryos and women who have opted to electively freeze their eggs. In support of embryo disposition findings, the review found that women who actually froze their eggs preferred to donate to research and were less likely to choose to discard them, compared with women who were potential elective egg freezers. Regarding women's intentions to donate to others, the review found that approximately one-third of women who actually (26%) and potentially (32%) elected to freeze their eggs reported a willingness to donate their eggs to others. This is another important finding in view of the global shortage of oocytes for third-party reproduction as mentioned by the investigators.

Another contribution of the review is the recommendations for the wording of disposition questions and response options in future research. The investigators go as far as to suggest the question “If you have surplus frozen oocytes what would you like to do with them?” along with suggesting response options. This specificity of language to use in future

surveys likely will be beneficial for advancing knowledge about women's disposition decisions. The findings on the psychosocial determinants also are important although only 2 studies investigated the determinants. One study was an in-depth qualitative investigation and was completed with women who actually froze their eggs. The other study was a quantitative survey and was completed with women of reproductive age. Common facilitators for donation to others were an awareness of friends and/or family who were infertile and barriers were the potential to have a biological child they do not know or who is raised by someone the woman knows.

The limitations of this review are the relatively low number of studies that have included women who have undergone elective egg freezing and the substantial heterogeneity of the meta-analytic findings. Small sample sizes of several of the studies and the self-selection of women to participate in the studies further limits the findings. Nevertheless, the investigators have acknowledged these limitations and provide detailed and transparent information about the state of the science and next steps for future research.

In summary, the review is a major contribution to the field. The investigators synthesize disparate research by using scientifically rigorous methods to provide a comprehensive review that provides meaningful information and future direction by detailing what we know and do not know about women who electively freeze their eggs and their disposition intentions regarding surplus oocytes.

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