

Post-trauma debriefing: the road too frequently travelled

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The meta-analysis by Arnold van Emmerik and colleagues in today's *Lancet* about the efficacy of post-trauma psychological debriefing stands among the more potent entries in an increasing litany of reports, reviews, and consensus statements. The latest report raises significant concerns about this ubiquitous intervention. Despite limitations from poor data-quality and uneven design in the studies assessed, the analysis is consistent with those of other researchers, indicating that debriefing: (1) yielded no demonstrable effect on subsequent resolution of traumatic exposure and may inhibit or delay resolution for some participants; (2) showed a smaller effect than calculated for non-intervention controls, suggesting that natural proclivities toward resilience may be more potent than this style of intervention and (3) yielded lower effect-sizes than alternative interventions against which it was compared, raising the strong likelihood that other approaches are more likely to help.

The findings echo and extend assessments of multiple randomised trials in Cochrane Collaboration reviews.¹ Although such meta-analyses have been criticised for lacking studies of group debriefing within the specific occupational settings in which the practice originated (rather than in traumatised individuals more generally), well-designed quasi-experimental field studies in those contexts have also yielded negative or equivocal findings,²⁻⁴ which leaves the burden of proof about efficacy with proponents of debriefing.

The implications for practice are unequivocal. Calls for caution and restraint have been heard from many responsible scientists and practitioners,⁵⁻⁹ and are underscored in conclusions from consensus panels¹⁰ and empirically-based practice guidelines that have recommended limitation^{11,12} or contraindication.^{13,14} But despite direct and publicised warnings from well-established researchers in trauma response and intervention,^{15,16} reports from New York City after the attacks on the World Trade Center indicated that more than 9000 purveyors of debriefing and other popularised interventions—more than three counsellors for every person believed to have died in the attack—swarmed there, advocating intervention for any person even remotely connected to the tragedy.¹⁷

Given the evidence, why should use of debriefing techniques not only persist but also seemingly flourish? Post-traumatic stress disorder is much debated.¹⁸ Progressive dilution of both stressor and duration criteria has so broadened application that it can now prove difficult to diagnostically differentiate those who have personally endured stark and prolonged threat from those who have merely heard upsetting reports of calamities striking others. Moreover there are few systematic data about the normal course of resolution after traumatic exposure or the inherent variability of that course within and between individuals, a fact that leaves discernment between symptoms of arrested or abnormal processing and normal signs of sometimes profound but ultimately transient discomfiture a subject of speculation.

The problem is compounded further in practice, where the enterprise of debriefing has become dominated by a prolific and parochial subculture of secondary providers whose understanding of these highly complex and elusive issues is often limited to proprietary workshops, trade magazines, and paperback books rather than the peer-reviewed venues of empirically guided professional practice. This has, in turn, created entrenched enclaves of self-

identified debriefers within various organisations—initially in public safety and military concerns, but now extending into schools, hospitals, and a widening range of other enterprises—who earnestly strive to help but stand severely hampered by the tools they have been sold.

Although immediate debriefing has yielded null or paradoxical outcomes, the value of contemporaneous instrumental assistance and support—those kinds of practical help often learned better from grandmothers than from graduate training—has increasingly been found to be useful in disaster response.¹⁹ Structured interventions, however, may be better embedded in models of stepped care, where the nature and level of intervention is conservatively tailored to the needs, context, and course of individual resolution.^{20,21} Preliminary epidemiological data from New York City have revealed levels of post-traumatic stress disorder that, whilst clearly significant, fell below even conservative early prognostications²² and which had dropped by more than two-thirds within 4 months.²³ These findings underscore the counterproductive nature of offering a prophylaxis with no demonstrable effect, but demonstrated potential to complicate natural resolution, in a population in which limited case-conversion can be anticipated, strong natural supports exist, and spontaneous resolution is prevalent.

Promising approaches are emerging, with high sensitivity and specificity, allowing straightforward and relatively non-intrusive assessment to identify those at greatest risk of clinical progression to post-traumatic stress disorder.²⁴ These approaches are designed for implementation 2–4 weeks post-impact, when brief-series cognitive behavioural therapy has efficacy in treating post-traumatic stress disorder in high-risk populations.²¹

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Sperm mRNA—what does daddy do?

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7–10% of men have male-factor infertility, mostly idiopathic. Whether sperm counts are declining¹ and whether environmental factors (eg, oestrogens, pesticides, underwear) are among the culprits is controversial. Advanced paternal age influences pregnancy success as well as birthweights.² Infertile couples are increasingly seeking assisted reproduction technologies (ART) and conception by ART accounts for about 5% of births in some European countries and probably for about 1% in the USA.³ There used to be no ambiguity about good sperm: swift, normal shape, explosive acrosome release to get through the egg's zona pellucida, and the more sperm, the better.

In 1992, Palermo et al⁴ revolutionised the treatment of male infertility with intracytoplasmic sperm injection (ICSI): a single sperm is microinjected into the egg, and the rates of fertilisation and pregnancy success are astonishing. Now men with immotile, misshapen, or few sperm can father children. Furthermore, men with no sperm in their ejaculates or testicles can be fathers by the injection of immature spermatids obtained by testicular aspiration or biopsy (certainly by injection of elongated spermatids, although reports of injections of round spermatids remain controversial⁵). ICSI is a renaissance for infertile men since pregnancies are now routine even with single immotile, immature, dysfunctional, and dysmorphic sperm. Ironically ICSI, by rendering traditional sperm-assays nearly obsolete, has created a void in diagnosing male-factor infertility.

What does daddy do? This question, even before the cloning of Dolly the sheep is considered,⁶ is now more answerable with today's report in *The Lancet* by Charles Ostermeier and colleagues. Successful reproduction requires perfect complementation between sperm and egg, and several paternal contributions: the properly imprinted haploid genome,⁷ activation signal⁸ or signals,^{9,10} the sperm's centrosome,^{11,12} and now, with the Ostermeier report, perhaps also vital mRNAs. ICSI's success suggests that sperm motility, the acrosome reaction,¹³ and morphology are not vital; nor might sperm mitochondria be needed.¹⁴ Since 1997, seven mammalian species have been cloned by somatic-cell nuclear transfer (SCNT). Reproduction by SCNT violates the requirement for exactly two parents of opposite sexes but it is inefficient, possibly because of the absence of some vital RNA from sperm which, according to

Ostermeier and colleagues, include several involved in fertilisation and early embryogenesis. Oocytes microinjected with RNA interference (RNAi), antisense to these identified human sperm mRNAs, studies in either mice or nonhuman primates will provide answers. However, the discovery of mRNA in sperm raises questions about RNA devoid of poly A tails. The mRNAs were sorted by their distinctive poly A tails, but not all mRNAs have such tails. There is more to RNA than just mRNA, rRNA, and tRNA. Small nuclear RNAs (snRNAs)^{15,16} may prove to be the most exciting molecular regulators during development.

Less than 3000 different mRNAs define fertile sperm, according to Ostermeier and colleagues, and these mRNAs may become invaluable for: new diagnostics for idiopathic infertility; discovering paternal influences to both the fetus and the placenta; ascertaining if there are generational consequences of environmental exposures of boys and men; new strategies for male contraception; and even potentially new ARTs (eg, specific mRNA supplementation during ICSI of mRNA-impaired sperm). Are sperm mRNAs remnants of their past lives during spermatogenesis, especially spermiogenesis, or vital packets essential to energise embryos? Such information is especially important for its prognostic value when evaluating each sperm's reproductive potential. Although mRNA detection is non-invasive for the man, it destroys the sperm, so population analysis (not individual detection) will be required.

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