Applications of the 4W Model of Drowning for Prevention, Rescue and Treatment, Research and Education

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Previous research has been published about the 4W model of drowning and its four constituent variables (Avramidis, Butterly & Llewellyn, 2007; 2009a; 2009b; 2009c; 2009d; Avramidis, McKenna, Long, Butterly, & Llewellyn, 2010). We presently summarize and suggest applications of the model for the general public, aquatic safety professionals, injury epidemiologists and policy makers. The method consisted of a major literature review of quantitative research that was undertaken to identify potential risk factors of drowning, a qualitative content analysis that was used to analyze publicly available drowning incident videos (n = 41, M = 345.0 secs, SD = 2.8), and a semi-structured interview of 34 individuals who were involved in drowning incidents (30 males age 16–65 years, M = 28.4, SD = 11.3; 4 female age 19–65 years, M = 37.5, SD = 19.5). Results confirm that the model has numerous applications in terms of prevention, rescue, treatment, research and education. In terms of prevention and education, it is suggested that water safety organizations should establish new testing criteria for qualifying pool and beach lifeguards (e.g. "100 m run–50 m swim–100 m run" for open water, "50 m run–20 m swim–50 m run" for pool/water parks and "early approach" criteria). In addition, emphasis needs to be given during training on the 3 dimensions that constitute each drowning problem (i.e. width, length and height or depth). Moreover, this stresses the need, from an educational point of view, for better public awareness regarding water safety prevention in people who engage not only in aquatic activities but also in non-aquatics in or around the water, for them to know how to swim and be able to survive in an aquatic emergency. In terms of rescue and treatment, consideration of the 3 dimensions that synthesize the rescue and its implications for the outcome of the rescue and the first aid treatment will help lifeguards and lifesavers to be faster, more effective and able to avoid potential problems that might delay their attempt. Finally, in terms of research, the 3 dimensions of the model reveal that the numerous "hidden" drowning incidents that contemporary injury epidemiology classifies under different codes, should count as "drownings" for better describing the real mortality rates. By doing this, the increased rate of the drowning figure will act as a positive force that will positively influence decision making, research funding, public awareness and lifeguard preparedness. Collectively, the 4W model has a wide range of lifesaving related applications.

References

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