

A drowning risk assessment (DRA) observation instrument: Developmental proposal

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Background/Introduction

Drowning is a leading cause of injury and death worldwide (1)(2). Organizations providing lifeguard training have identified characteristics of individuals classified as drowning victims and tired swimmers (3). The Aquatic Readiness Assessment (ARA) is a valid and reliable developmental swimming assessment that describes swimming behaviors in observable terms similar to those used to describe drowning victims (4).

Aims/Objectives

Modify components of the Aquatic Readiness Assessment (ARA) to become the Drowning Risk Assessment (DRA) for identifying swimmers/bathers at risk of drowning.

Target

Lifeguard educators, drowning prevention researchers, practicing lifeguards.

Methods/Implementation

The ARA is a series of components that track how a person progressively acquires swimming skills over time. Inexperienced swimmers tend to have a near vertical body position, skilled swimmers remain closer to horizontal (4). Paradoxically, persons at risk of drowning regress backward through the sequence order from swimmer to tired swimmer to drowning victim (3). The ARA component sequences for breath control, body position, arm and leg actions, and front swimming describe progressive ordered categories that objectively assess swimming development. In reverse order as the Drowning Risk Assessment (DRA) the components describe how swimmers regress to become a drowning victim. The current proposal establishes validity and reliability of the DRA as a drowning risk assessment instrument by using existing collections of swimming videos. The established inter-rater objectivity of the ARA exceeds 80% exact agreement with similar rater objectivity for DRA since the observed behaviors are described similarly.

Results/Evaluation

Selected components the ARA each have established levels of validity, reliability, and objectivity for the purpose of assessing swimming development. The validity and reliability coefficients of component categories described in reverse order for use as the DRA need to be established by empirical study. Developmental validity examines the degree to which swimmers and drowning victims recorded on video are observed to transition (regardless of time frame) from low risk behaviors to higher risk behaviors in the order described across individuals. Reliability requires estimating how consistently those transitions occur among individuals.

Discussion

This study addresses the unique, but little-studied principle of developmental directionality that asserts movement changes such as swimming skills can occur both progressively and regressively. Progressive change as validated by the ARA emerges from a variety of individual and experiential constraints imposed over time. Regressive change from a state of swimming with a low risk of drowning to becoming a drowning victim is likely caused by rapidly-altered individual and task constraints such as fatigue, distance, or depth. Identifying the validity and reliability of a drowning risk assessment (DRA) is invaluable in training lifeguards as well as providing a recognized assessment instrument for such studies as Can You Swim (5).

Conclusion

Converting the developmental ARA into its converse, the Drowning Risk Assessment (DRA), holds promise for assessing both the risk of drowning as well as for investigating the link between capability in swimming and likelihood of drowning.

References

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