Redefining Thirst: Beyond Dehydration and toward a Holistic Biopsychological Model

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Keywords

Appetite · Acetylcholine · Hydration · Osmolality · Thirst · Xerostomia

Abstract

Introduction: Currently, the conceptualization of thirst is based nearly entirely on osmoregulation, with some acknowledgment of anticipatory-thirst, though with no testable mechanism. Such a model of thirst is unable to explain many thirst-related phenomena, such as why drinking can occur with hypoosmolality or how quantity of intake at a drinking occasion is regulated. **Discussion:** This model aimed to unify various lines of thinking from different disciplines surrounding thirst by presenting a 4-compartment model comprising true-thirst (primarily osmo-regulated), contextual-thirst (e.g., mouth-breathing), pharmacological-thirst (induced from drugs), and impulsive-thirst (everyday spontaneous drinking). Within this framework, xerostomia (dry mouth) is the primary regulator of drinking, with a further differentiation between a literal dry mouth ("true-xerostomia," hyposalivation) and the sensation of dry mouth ("sensational-xerostomia," a typically nonoverwhelming desire to drink based on a feeling of dry mouth without hyposalivation). Based on pharmacological-thirst mechanisms, the cholinergic system is proposed to initiate impulsive-thirst by triggering a (sensation of) dry mouth in everyday life. Food-appetite constructs that are centrally regulated (sensory-specific satiety, palatability, and pleasantness) are applied to thirst to explain everyday drinking patterns. **Con-**

clusion: This model helps to explain some anomalies that are thus far unexplained by true-thirst, though there are several other factors which may need to be included after further exploration in the future.

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Statement of Ethics

This is a theory paper; no human or animal participants were used as no study was conducted.

Conflict of Interest Statement

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