



Applying a Lifespan Developmental Perspective to Chronic Pain: Pediatrics to Geriatrics

Gary A. Walco,^{*,†} Elliot J. Krane,^{‡,§} Kenneth E. Schmader,^{¶,||} and Debra K. Weiner^{**.,††}

^{*}Departments of Anesthesiology and Pain Medicine, Pediatrics, and Psychiatry, University of Washington School of Medicine, Seattle, Washington.

[†]Seattle Children's Hospital, Seattle, Washington.

[‡]Department of Anesthesiology, Perioperative and Pain Medicine, Stanford University School of Medicine, Palo Alto, California.

[§]Stanford Children's Health, Palo Alto, California.

[¶]Department of Medicine, Duke University Medical Center, Durham, North Carolina.

^{||}GRECC, Durham VA Medical Center, Durham, North Carolina.

^{**}VA Pittsburgh Geriatric Research, Education and Clinical Center, Pittsburgh, Pennsylvania.

^{††}Departments of Medicine, Psychiatry, and Anesthesiology, Clinical and Translational Science Institute, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania.

Abstract: An ideal taxonomy of chronic pain would be applicable to people of all ages. Developmental sciences focus on lifespan developmental approaches, and view the trajectory of processes in the life course from birth to death. In this article we provide a review of lifespan developmental models, describe normal developmental processes that affect pain processing, and identify deviations from those processes that lead to stable individual differences of clinical interest, specifically the development of chronic pain syndromes. The goals of this review were 1) to unify what are currently separate purviews of "pediatric pain," "adult pain," and "geriatric pain," and 2) to generate models so that specific elements of the chronic pain taxonomy might include important developmental considerations.

Perspective: A lifespan developmental model is applied to the forthcoming *Analgesic, Anesthetic, and Addiction Clinical Trial Translations, Innovations, Opportunities, and Networks—American Pain Society Pain Taxonomy* to ascertain the degree to which general "adult" descriptions apply to pediatric and geriatric populations, or if age- or development-related considerations need to be invoked.

© 2016 Published by Elsevier Inc. on behalf of the American Pain Society

Key words: Pain, pediatrics, geriatrics, children, elderly, life-span development.

An ideal taxonomy of chronic pain syndromes would be applicable to people of all ages, from birth through the elderly years. To realize this aim, one would have to understand normal continuities

and discontinuities of pain systems over the life course, as well as clinical deviations from that course. At present such comprehensive models are not fully evolved; nonetheless efforts should be made to apply current knowledge to begin to identify potential contingencies, continuities, or discontinuities among chronic pain syndromes in pediatric, adult, and older adult populations (and associated diagnostic criteria).

Rather than highlight continuity over the life course, in the current state of pain treatment, there are individuals, typically in children's hospitals, who specialize in the assessment and treatment of pain in infants, children, and adolescents—pediatric pain specialists—and at the other end of the developmental spectrum, although not typically in specialized treatment facilities, there are those who focus on pain in older adults—geriatric pain specialists. For most patients aged 16 to 18 years and older, care of chronic pain

The views expressed in this article are those of the authors, none of whom has financial conflicts of interest relevant to the specific issues discussed. No official endorsement by the U.S. Food and Drug Administration (FDA) or the pharmaceutical and device companies that have provided unrestricted grants to support the activities of the ACTION public-private partnership with the FDA should be inferred. Financial support for this supplement and for the development of the AAPT has been provided by the ACTION public-private partnership, which has received research contracts, grants, or other revenue from the FDA, multiple pharmaceutical and device companies, and other sources. A complete list of current ACTION sponsors is available at: <http://www.action.org/partners>.

Address reprint requests to Gary A. Walco, PhD, Department of Anesthesiology and Pain Medicine, Seattle Children's Hospital, 4800 Sand Point Way NE, Seattle, WA 98105. E-mail: gary.walco@seattlechildrens.org
1526-5900/\$36.00

© 2016 Published by Elsevier Inc. on behalf of the American Pain Society
<http://dx.doi.org/10.1016/j.jpain.2015.11.003>

syndromes is provided by “adult” pain care providers. Ideally, those aged 65 and older would be followed by geriatric pain specialists, but because of the paucity of geriatricians nationally, those without specific geriatric medicine training usually provide care. The division between these 3 patient groups—pediatric, adult, and elderly adult—is arbitrary and artificial, and reflects the exigencies of training, clinical, and research interests of providers and scientists more than unique characteristics of patient groups or areas of study. The obvious limitation of our current age groups is evident as one realizes that the pain experience of a person 17 years 11 months of age has more in common with an 18-year-old than an infant; yet that individual would still be under the rubric “pediatric” rather than “adult” pain. Likewise, the experience of an individual 64 years of age has more in common with one 65 years of age than one 18 years of age, yet that person might still be seen as an “adult” patient with pain rather than being part of an “older adult” population.

The limitations of our trifurcated pain treatment system are even more obvious in view of the trajectory of individuals. Anecdotally, providers hear adult patients of all ages reflecting on difficulties they had with pain as a child or adolescent, a finding substantiated by formal studies.²⁵ More poignantly, as described herein, there are increasing numbers of prospective longitudinal studies that show that children with chronic pain are at risk for persistent pain problems, other somatic symptoms, and psychiatric difficulties during their adult years.

The purpose of this article was to provide a framework for approaching these developmental concerns in chronic pain. We will first describe a conceptual model and then elements relevant to pain problems at the 2 extremes of the life course: childhood and the later years. As one then reviews material of various chronic pain problems defined in the Analgesic, Anesthetic, and Addiction Clinical Trial Translations, Innovations, Opportunities, and Networks—American Pain Society Pain Taxonomy (AAPT),¹⁷ one might invoke developmental models to ascertain the degree to which general “adult” descriptions, the predominant paradigm, apply to pediatric and geriatric populations, or if there are specific age- or development-related factors to be considered. For example, how is fibromyalgia the same or different as it appears in an 11-year-old versus a 45-year-old versus an 82-year-old? Although a comprehensive review of all factors related to chronic pain is far beyond the scope of this article, efforts will be made to provide examples of key sensory, cognitive, and emotional factors that underlie the development of chronic pain syndromes.

Lifespan Development

A movement began among gerontological psychologists more than 3 decades ago, who sought to view development over the course of the life span. For many years developmental sciences were dominated by a focus on childhood, with implications, if not frank statements, that indicated that the most focal developmental mile-

stones occur early in life. Writings by Sigmund Freud and Jean Piaget, for example, would lead one to think that all significant stages of cognitive and emotional development are concluded by adolescence. Such models were challenged by Baltes,² who defined critical elements of a lifespan developmental approach: 1) ontogenetic change is multidirectional, 2) age-connected and disconnected developmental factors should be considered, 3) there is a dynamic and continuous interplay between growth (gain) and decline (loss), 4) historical embeddedness and other structural contextual elements are powerful factors, and 5) there is a range of plasticity in development.

Wohlwill⁸⁵ described a 5-step methodological approach to the study of developmental issues that might serve as a model to explore aspects of pain and its correlates over the life course: 1) discovery and synthesis of developmental dimensions, including the operational definition of the variable under study and delineation of reliable and valid means of assessing that variable over time; 2) descriptive study of age changes through longitudinal and cross-sectional studies that encompass quantitative (overall direction and form of developmental functions and their parameters) and qualitative (developmental sequences in the appearance of discrete responses over the course of development, along with specification of the forms that these successive responses might take) changes; 3) examination of temporal correlates of the developmental function in an effort to understand mechanisms underlying the observed processes; 4) systematic manipulation of variables or studying temporal relationships among factors to determine causal impact on outcomes; and 5) distinguishing individual differences in development (minor variations from the developmental function) from the development of individual differences (significant deviations from the normal developmental curve in some constant or predictable fashion), because the latter might imply clinically meaningful or pathological concerns.

The ultimate outcome for any individual lies in their genetic endowment interacting with the environment and life experiences. Whether one invokes a “nature-nurture” or an epigenetic perspective, specific risk and resilience factors will come into play. Following a lifespan developmental model, we use data to identify the development of pain mechanisms and pain experience over the life course of individuals, with a focus on the normal development of pain systems and other physiological processes that influence pain. We will then provide examples of physiological and socioenvironmental influences on these processes that could lead to various pain syndromes specific to age groups. Relevant animal data involving active manipulation of factors related to the development of pain systems will be invoked to elucidate causal relationships, and laboratory and clinical pain studies will be cited to identify the contribution of key contextual factors. All of this will be in service of making the AAPT chronic pain taxonomy more useful for individuals of all ages.

Download English Version:

<https://daneshyari.com/en/article/2722791>

Download Persian Version:

<https://daneshyari.com/article/2722791>

[Daneshyari.com](https://daneshyari.com)