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Jessica T. DeFrank

Longitudinal Study of the Influence of False-Positive Mammography Results on Psychological Outcomes and Subsequent Screening Behavior

Abstract
Background: If screened regularly, as many as one-half of U.S. women will have abnormal mammography results that require additional follow-up but in which cancer is not detected (false-positive result). This dissertation presents and tests a conceptual model, informed by theoretical and empirical evidence, of the relationship between receipt of false-positive mammography results and adherence to subsequent mammography screening.

Methods: To test study hypotheses, I analyzed longitudinal data ($n=2406$), gathered through medical claims records and telephone interviews, as part of the PRISM (Personally Relevant Information on Screening Mammography) intervention trial to increase repeat mammography adherence among insured North Carolina women.

Results: About 8% of women received false-positive mammography results within 14 months of their interviews. Among women who said their physicians had not advised them to get mammograms in the past year, those who received false-positive results were more likely to have no subsequent mammogram on record compared to women whose test results were normal (18% vs. 7%, $OR=3.17$, 95% CI=$1.30,7.71$). However, among women who reported physician recommendations, receipt of false-positive results was not associated with adherence to subsequent screening. Receipt of false-positive results was associated with greater breast cancer worry ($p<.001$), the belief that mammography test results were less accurate ($p=.003$), and thinking more about the benefits of regular screening ($p<.001$), regardless of physician recommendations. In mediation analyses, none of these variables explained the association between false-positive test results and subsequent screening behavior.

Discussion: Findings suggest that women who receive false-positive mammography results, coupled with lack of physician recommendations for screening, are at risk for non-adherence to future screening. Abnormal mammograms that do not result in a cancer diagnosis are opportunities for physicians to emphasize the importance of regular screening. Findings provided only partial support for the proposed model, perhaps due to characteristics of the PRISM study design, where all women received annual reminders for their mammograms.
Elizabeth King

HIV service utilization among female sex workers in St. Petersburg, Russia: Individual and contextual influences on access to testing and treatment services

Dissertation committee: Suzanne Maman (Chair), J. Michael Bowling, Kathryn E. (Beth) Moracco, Michele Rivkin-Fish, and Ivana Vuletic

Abstract
Introduction: Female sex workers, especially women who are injection drug users, are particularly vulnerable to HIV in St. Petersburg, Russia. Factors that influence the utilization of services by this marginalized population have not been adequately explored. The objective of this mixed-methods study was to gain a better understanding of the facilitators and barriers to accessing HIV services for female sex workers. The research was guided by the theoretical perspectives of the Health Belief Model and Structural Violence.

Methods: Fieldwork in St. Petersburg consisted of participant observations of HIV services, and 29 in-depth, semi-structured interviews and 152 structured interviews with female sex workers. Qualitative data were coded in Atlas.ti and multivariable logistic regression was performed using SAS 9.2 to determine which factors were associated with recent HIV testing.

Results: The mixed-methods findings showed that perceived barriers to getting an HIV test centered around fear of learning the results, worrying that other people would think they were sick, and the distance need to travel to obtain services. Quantitative data demonstrated that if a female sex worker reported knowing someone who has HIV then she was more likely to have had a recent HIV test [OR=5.47, 90%CI (1.28, 23.38)]. The results of this study revealed that female sex workers experience stigma, discrimination, and physical violence. Participants discussed the fear or being treated poorly by health care providers because of their status as sex workers, drug users, and HIV-infected. Results from the quantitative data analysis indicated that female sex workers who perceived stigma associated with HIV to be high were less likely to have received a recent HIV test [OR=0.91, 95% CI (0.85, 0.98)]. There are structural barriers embedded within the health care and state system that participants struggle to negotiate with, and in many cases are limited by their social marginalization to access the care they need.

Conclusions: Results from this study highlight the need to improve access to HIV services for marginalized populations, further expand outreach services for sex workers on the streets and in brothels, address stigma in the health care system, and develop innovative ways to provide support to marginalized populations in negotiating the utilization of HIV services.
Jessica Duncan Cance

The Meaning of Pubertal Timing and Implications for Substance Use across Adolescence

_Dissertation committee_: Susan Ennett, PhD (Chair); Jo Anne Earp, ScD; Vangie Foshee, PhD; Jill Hamm, PhD; Antonio Morgan-Lopez, PhD

_Abstract_

**Introduction**: Pubertal timing – the comparative development of an adolescent in relation to peers – is associated with health risk behaviors in adolescence, including substance use. However, limitations regarding the measurement of pubertal timing preclude a reasonable understanding of this relationship. The first two studies of this dissertation were designed to address the measurement of pubertal timing, guided by person-in-context theory and the theory of psychosocial development. The third study examined the impact of pubertal timing on substance use, incorporating the findings from the measurement studies.

This dissertation focused on two self-report measures of pubertal timing that are often used interchangeably but may reflect different aspects of development. _Stage-normative pubertal timing_ was constructed by comparing the adolescent’s perceived pubertal status based on biological indicators to the self-reported pubertal status of peers averaged by age, gender, and race/ethnicity. _Peer-normative pubertal timing_ was based on the adolescent’s perception of their pubertal timing compared with peers.

Data are from five waves of the Context of Adolescent Substance Use study, a school-based longitudinal study of three cohorts, beginning in the 6th to 8th grades. Adolescents were between the ages of 11 and 17 and were 50% male and 53% White.

**Methods and Results:**

**Study 1** examined the concordance between stage-normative and peer-normative pubertal timing. Person-in-context theory suggests the two measures would have good but not excellent concordance because the peer-normative measure presumably accounts for the social experience of puberty. Kappa statistics were calculated, both as a whole and by demographic subgroup at each age (N=6,425). Most Kappa statistics ranged from poor to modest concordance, indicating that the pubertal timing measures should not be used interchangeably.

**Study 2** used two longitudinal methods to examine the stability of pubertal timing (N=6,425). It is unknown whether pubertal timing changes across adolescence or
is a stable construct, although the theory of psychosocial development suggests it is a stable construct. The first method used a series of one-way ANOVA random effects models to calculate intraclass correlation coefficients (ICC) for each pubertal timing measure. The second method used latent class analysis (LCA) to determine stability via the underlying response patterns of each measure. LCA was expected to provide a better test of stability because the entire pattern of responses is taken into account, with variation treated as measurement error.

Both measures had similar, but poor, stability when using random effects ANOVA models (stage-normative ICC=.40 and peer-normative ICC=.39). In contrast, the latent class analysis showed three stable and distinct response patterns for both measures: always early, always on-time, and always late. A larger proportion of adolescents were classified as always early using the peer-normative versus the stage-normative measure. The results suggest that adolescents' perceptions of pubertal timing are formed early in adolescence and become part of personal identity; as such, early perceptions of pubertal timing may remain important to substance use over the course of adolescence.

**Study 3** used latent class growth modeling to test two theoretical hypotheses related to the impact of pubertal timing on current cigarette, alcohol, and marijuana use across adolescence, the early maturation and maturational deviance hypotheses (N=5,846). Contrasts tested for significant differences in the substance use growth model parameters between the pubertal timing latent classes determined in Study 2.

The relationship between pubertal timing and substance use varied depending on the pubertal timing measure and focal substance. For both measures, a higher proportion of early developing adolescents were using cigarettes, alcohol, and marijuana compared with their on-time and, in general, their late developing peers. But the peer-normative models also found a higher proportion of late developing adolescents to be using cigarettes compared with their on-time peers. The strength of the relationship between pubertal timing and substance use was generally stronger using the peer-normative measure than the stage-normative measure. For both pubertal timing measures, the influence on substance use was greatest in early adolescence.

**Conclusion**: Stage-normative and peer-normative pubertal timing are not synonymous but both are stable throughout adolescence. Early developing adolescents are at greatest risk for substance use and results suggest the social aspects of pubertal development are more influential than the biological aspects.
Benyamin Margolis

Exploring the Relationship between Childhood Neglect and Violence in a Sample of High-Risk Early Adolescents: Findings from a Longitudinal Study

Dissertation committee: Dr. Carol W. Runyan, PhD (chair) Shrikant Bangdiwala, PhD; Robert Flewelling, PhD; Jonathan Kotch, MD, MPH; Desmond Runyan, MD, DrPH; Michael Yonas, DrPH

Abstract

Introduction: Youth violence rates have increased more than adult rates since 2004. Child maltreatment is a key risk factor for violent behavior in youth. Although neglect is the most prevalent form of childhood maltreatment, its contribution to development of violence is unclear, as is the potential mediating role of social bonds. This dissertation assesses the relationship between childhood neglect before age 8 and the development of early adolescent violence (EAV) by age 14, and examines whether social bonds, defined according to Social Control Theory (SCT), mediate this relationship.

Methods: Data came from interviews of children (n=352) from two samples of the LONGSCAN (Longitudinal Studies of Child Abuse and Neglect) Consortium who completed the Conduct Disorder module of the Diagnostic Interview Schedule for Children-Version IV (DISC). The outcome was self-reported perpetration of serious violence in the previous 12 months. Additional data came from the child’s caregivers and social service agency records. Data were analyzed to examine differences between violent and non-violent youths based on exposure to maltreatment. Negative binomial regression models assessed the neglect-EAV relationship by examining incidence rate ratios (IRR). Specific indirect effects were examined to determine whether the four SCT constructs (attachment, commitment, belief, involvement) mediated the neglect-EAV relationship.

Results: Only 11% (n=38) reported engagement in any EAV but nearly twice as many females (n=24) than males (n=14) reported EAV. The relationship between neglect and EAV was not significant (IRR=1.04). Social bonds did not mediate the neglect-EAV relationship, although weaker commitment (B=-0.413; p<.05) and attachment (B=-0.385; p<0.05) predicted higher EAV rates. However, there was a significant effect of peer criminality on the rate of EAV.

Conclusion. Though limited by lack of statistical power, this study demonstrated that social bonds are influential on the perpetration of violence in early teens. Social bonds, however, do not appear to mediate the neglect-EAV relationship. Further testing of this conceptual framework and exploration of sex differences are warranted. Efforts to facilitate strong attachments to caregivers, prosocial peers, and institutions are worth considering as preventive strategies.