Adolescent Psychological Development: Implications for Uptake of MPTs

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Adolescent Brain and Psychosocial Development

- We have known that adolescence is a unique period as Shakespeare indicated in “A Winter’s Tale”

“I would there were no age between sixteen and three-and-twenty, or that youth would sleep out the rest; for there is nothing in the between but getting wenches with child, wrongdoing the ancientry, stealing, fighting…”

- New techniques (e.g., fMRI) have shown changes in brain development match the developmental literature, which has given renewed attention to adolescent developmental changes
Not only are there many changes in adolescence; those changes continue into young adulthood (NIH)
So . . . raises both of these questions:
– Are we providing enough support to our young adults?
– If we let young adults make those decisions; why not let minors?
Implications of Brain Development

- In general, great capacity for learning during the adolescent years
  - When 40% of youth globally are not in school; with 63% in least developed countries (UNICEF, 2016)

- In non-social situations, they are like adults in understanding and applying rules: learn rules less well in social situations (Blakemore, 2012)

- May be more responsive to emotionally loaded content than younger children or adults
  - “Amygdala Hijack”; “Hot Cognitions”: When the amygdala (emotions) take over the pre-frontal cortex (thinking/executive function)
Implications for Decision-Making

- Linear decline in impulsivity between ages 15 and 30
  - Reward-seeking followed a curvilinear pattern, increasing between preadolescence (10yrs) and mid-adolescence (15yrs), and declining (or remaining stable) thereafter
  - Thus, intersection of rewarding seeking with less impulse control may lead to higher vulnerability to risk-taking

Cauffman, et al., Behav Science Law, 2000; Steinberg et al., Dev Psychol, 2008
But again. . . Not all Adolescents Are the Same

Some will
- Have cognitive deficits
- Have experienced toxic stress or poverty
- Have psychiatric disorders (e.g., conduct disorders, depression, ADHD)
- Be using substances
Acceptability vs Intent vs Uptake vs Adherence

- **Definitions:**
  - Acceptability: general attitude toward product
  - Intent: plan to use
  - Uptake: actually using the product
  - Adherence: using both correctly and consistently

- Products can be unacceptable and used (typically for treatment)

- May have intent to use; and not use

- Doing once (uptake) different than correct and consistent use (may need to become “habit”)

Tolley, et al., Antiviral Res, 2013
MPT: Target Product Profile (TPP)

- Preferred characteristics will vary across cultures:
  - e.g., Rapid return to fertility more important to providers and potential users in Kenya than Rwanda
  - Providers do not always predict users’ attitudes correctly

- Contraception different than preventing/treating infections
  - No evidence yet that RTI provides a cover to make it more acceptable

- In some cultures (e.g., U.S.) more is almost always better

Data Gaps

Understanding the link between intent and adherence
- How attitudes about product characteristics that influence acceptability/intent are developed
- Contextual factors influence uptake/adherence
- Individual factors influence uptake/adherence
  • All adolescent and young adult women
  • Women with special considerations

Best strategies/interventions to:
- Foster uptake/adherence to less acceptable products
- Foster uptake/adherence within contextual and individual barriers
Safety/Efficacy Assessments

- Across cultures: safety and efficacy are important
- How do those attitudes develop?
  
  *But it's weird...I just heard that it {Nuvaring} . . . can tear like wear down your walls or something like that that I heard of.*

  *I feel like it [IUD] has got to stop something. It's got to mess something up. There's no way that—they don't even put pacemakers in for that long, do they?...Like for a reproductive system, I feel like that would just throw a whole lot of things out of whack.*

- Efficacy perceptions were based in part on product characteristics:
  - gel volume, location in the vagina, coating behavior, sensation of the gel, leakage, and gel changes during coitus

Attitudes about Vagina and Vaginal Health

- Has to fit with attitudes about vagina and vaginal health
  - Specific practices are used to keep the vagina healthy which will vary by culture and may be learned from elders
  - How does those practices complement or interfere with use of MPT?
  - How does the sensory experiences influence their perception of the vagina as healthy
  - Vagina may be viewed as “shared space” with partner; how does impact perceptions

Access Factors

Access: community level barriers
- Over-the-counter availability
  - Too visible: worried about the neighbors
  - Near Midol, tampons, pads OR nail polish, hair goods
  - Pharmacy in low SES neighborhoods may have less convenient hours

Access: individual barriers
- With whom to they share a bedroom/where do they have sex?
  
  “I’d just put it in my mom’s room. ‘Cause I – Actually, I share a room with her; I gotta keep it in there.”

Timing of Use: How to Manage the Impulsivity

- Post-coital use of a microbicide or MPT
  - Inconsistent with some girls’ notion of prevention
    “Afterwards doesn’t sound safe. It’s more like it’s already up there.”

- Non-coitally dependent use
  - Adolescents were not confident that they would have sex, might be “wasteful”
    “There’s a limited time and say you did it ahead of time thinking it was going to happen and then it didn’t happen in that time and then you just wasted one.”
  - No evidence that adolescents have been good at OCPs

- Long-acting
  - Overcomes “habit” but LARCs have had slow uptake

Short, et al., Sex Transm Dis, 2003;
Next Steps

➢ Community based studies (equivalent to pre-clinical?):
  – How attitudes about safety and efficacy are developed
    • Relationship to product characteristics
    • Sources of information
  – How attitudes about vaginal health relate to acceptable product characteristics

➢ Clinical trials:
  – Evaluate the impact of changing both community and contextual factors associated with access
  – Evaluate different methods for maintaining adherence --- focused on nuisance factors, person, and context
Perception of Risk
Willing to Consider
Affordability and Access
Beliefs in Safety and Efficacy
Attitudes about Vagina and Vaginal Health
Managing Nuisance Factors
Social Context
Brain Development: Skills