Quantifying female sexual function: What is necessary and sufficient?

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Two assumptions guide the field:

1. Genital physiology is sufficient to define normal sexual function and dysfunction; and

1. A woman’s subjective sexual experience is the gold standard for assessment and treatment.
We therefore assume…

…a woman’s perception of her sexual function and her physiological function are complementary sides of the same coin and can guide diagnosis and treatment of female sexual dysfunction.
Long history of poor concordance between subjective and genital physiological arousal

- Vaginal temperature (Henson, Rubin & Henson, 1979)
- Vaginal pH (Berman et al, 1999)
- Vaginal blood volume (Henson, Rubin, & Henson, 1982)
- Vaginal surface oxygen tension (Wagner & Levin, 1978)
- Subcutaneous vaginal blood flow (Hatch, 1979)
- Vaginal photoplethysmography (Laan et al. 1994 etc)
- Vaginal luminal pressure (Park et al., 1997)
- Clitoral intracavernososal pressure (Park et al., 1997)
- Clitoral cavernosal blood flow (Lavoisier et al., 1995)
- Clitoral doppler ultrasound (Kukkonen et al., 2005)
- Labial temperature (Payne et al. 2006)
- Functional magnetic resonance imaging (Komisaruk, Georgiadis, etc)
The most parsimonious explanation?

Our dichotomous definitions of female sexual response reflect independent physiological processes with nonlinear interactions.

It logically follows that treatments that preferentially targeting one process may not influence the other.
Vaginal photoplethysmography

Neutral  Foreplay  Oral  Intercourse
SUP GIRL.

THAT NONNORMAL DISTRIBUTION'S GOT ME QUESTIONING MY ASSUMPTIONS.
Models of Human Sexual Response

Masters and Johnson Model
(Masters & Johnson, 1966)

Circular Model
(Whipple, 2002)

Non-linear Model
(Basson 2001)

+ Objective
- Reductionist
Face Valid
Heteronormative

+ Emotion, Intimacy
- Difficult to Test
Context
Not based on physiological data

Model Depictions from Association of Reproductive Health Professionals
INTERNAL
- neutral contexts
- sexual contexts

sexual/erotic thoughts and fantasies

sexual excitement/pleasure

sexual interest/arousal in response to internal external cues

genital & non-genital sensations

EXTERNAL

interest in sexual activity

initiation of sexual activity

receptive to partner

distress
INTERNAL

neutral contexts
sexual contexts

Thoughts about food
interest in eating
excitement/pleasure while eating
interest/arousal in response to internal external food cues
Gustatory and non-gustatory sensations
disappointment

EXTERNAL

initiation of eating
receptive to chef
INTERNAL
neutral contexts
sexual contexts
sexual/erotic thoughts and fantasies
sexual excitement/pleasure
sexual interest/arousal in response to internal external cues
genital & non-genital sensations
distress

EXTERNAL
interest in sexual activity
initiation of sexual activity
receptive to partner
Frank Beach:

Full expression of sexuality requires the presence of a conspecific.
Attention is essential in the activation and modulation of sexual arousal


“…a stimulus is not intrinsically sexual; it becomes sexual by its [cognitive] transformation”

(Laan et al., 1994)
Validity check:

>80 % of neuroimaging studies use visual sexual stimuli to extrapolate neural substrates of desire, arousal

Meanwhile…
this is what the subject is doing.
Choice of erotic material
Choice of erotic material
Choice of erotic material
Perspective Shifting

- Observer
- Identification
- Relationship
Take Home Messages

• Internal and external experience of desire/arousal
• Sexuality as a solo versus social experience
• The appraisal of sexual stimuli is poorly understood and may yield the greatest scientific gain
• Can we tolerate the ambiguity of multiple treatments for multiple processes?
Thank you for your attention!

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