Designing the next generation intravaginal ring for prevention of HIV and unplanned pregnancy: what do potential users’ perceptions have to do with it?


(1) University of North Carolina at Chapel Hill, Medicine and Health Behavior, Chapel Hill, United States, (2) University of North Carolina at Chapel Hill, Carolina Population Center, Chapel Hill, United States, (3) University of North Carolina at Chapel Hill’s Eschelman School of Pharmacy, Division of Pharmacoengineering and Molecular Pharmaceutics, Chapel Hill, United States, (4) Brown University School of Medicine, Psychiatry & Human Behavior, Providence, United States, (5) North Carolina State University and The University of North Carolina at Chapel Hill, Joint Department of Biomedical Engineering, Raleigh, United States

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METHODS

Participants: Women from a state-wide health system aged 18-45 years from North Carolina

Goal: Elicit potential users’ sensory perceptions and experiences after being shown novel 3D-printed intra-vaginal ring (IVR) prototypes of varying designs and colors.

Design: Gather participant input to iteratively inform design and modiﬁcation of the novel 3D-printed IVR

9 virtual focus groups (VFGs) assessed visual aspects of IVRs
25 in-person in-depth interviews (IDIs) assessed visual and tactile aspects of IVRs modified based on VFG and concurrent animal safety/efﬁcacy data.

Coloring of rank and design preferences

RESULTS

KEY FINDINGS

VIRTUAL FOCUS GROUP PROTOTYPES

In Depth Interview Prototypes

Virtual Focus Groups

- Preferences for the "smooth ring" (C design) especially among Black users
- Concerns re: the perceived large size of the IVR for comfort and insertion
- Concerns about hygiene related to the holes/designs
- Importance of tactile aspects, or "I'd have to feel it"
- Preferences for a lighter hue; perceived as "calming" and "more approachable"

In-depth interviews (in-person)

- Initial reactions to size being bigger than expected; “chunky,” “thick,” “gritty,” “big and wide”
- Upon handling, IVRs are “more soft and malleable” than they appeared; color is perceived as a perceived aspect of the hard appearance
- Some prefer the aesthetic of "not having holes, but the increased flexibility/pliability of designs with holes outweighed this
- Concerns/questions about the holes and hygiene, especially for increased risk of yeast infections and BV

SUMMARY

- IVR characteristics generally perceived as important: texture, hue, size, comfort, and hygiene
- Overall, smoother surfaces and lighter hues were preferred visually, being seen as “calming,” “more approachable,” and enabling ones to “see what was on it” but color was not paramount
- Women felt that smaller rings would enhance comfort
- Some women perceived designs with small holes as unhygienic, potentially increasing risk of infections
- Findings from VFGs indicated the importance of in person data collection to assess tactile features
- In in-person IDIs, on initial visualization, prototypes were perceived as “chunky,” “thick,” “big and wide,” suggesting uncomfortableness, but upon handling, women found IVRs were “more soft and malleable” than initially they perceived. For many women, the perceived comfort advantages that the holes afforded outweighed the women’s hygiene concerns

CONCLUSION

Women’s views of multi-purposed (MPT), that is combined HIV prevention and contraceptive devices, varied, providing useful information in product design. IVR pliability was perceived to govern comfort and was a critical consideration for women.