2022

Representations and Perceptions of Sexual Pleasure in Undergraduate Anatomy and Physiology (A&P) Courses

Brenda Kucha Anak Ganeng
brendakaganeng@gmail.com

Follow this and additional works at: https://huskiecommons.lib.niu.edu/allgraduate-thesesdissertations

Part of the Biology Commons, Gender and Sexuality Commons, and the Science and Mathematics Education Commons

Recommended Citation
https://huskiecommons.lib.niu.edu/allgraduate-thesesdissertations/6813

This Dissertation/Thesis is brought to you for free and open access by the Graduate Research & Artistry at Huskie Commons. It has been accepted for inclusion in Graduate Research Theses & Dissertations by an authorized administrator of Huskie Commons. For more information, please contact jschumacher@niu.edu.
ABSTRACT

REPRESENTATIONS AND PERCEPTIONS OF SEXUAL PLEASURE IN UNDERGRADUATE ANATOMY AND PHYSIOLOGY (A&P) COURSES

Brenda K. Anak Ganeng, M.S.
Department of Biological Sciences
Northern Illinois University, 2022
Heather E. Bergan Roller, Director

The World Health Organization defines sexual pleasure as an important part of positive sexual experiences and sexual health. Despite its importance, sexual pleasure is often omitted from sexual health programming and curricula. Undergraduate human anatomy and physiology (A&P) courses serve as avenues where students who intend to go into health care learn foundational knowledge about human body systems and health; however, to our knowledge, there has been no documentation of if and how A&P students learn about sexual pleasure. A&P textbooks serve as an important resource for curriculum design and learning. I sought to answer the following research question: How is sexual pleasure represented in undergraduate, human A&P textbooks? Textual fragments and visuals related to sexual pleasure were identified and coded for content then analyzed using emergent thematic analysis. The content on sexual pleasure in textbooks was limited. When sexual pleasure was included, it was often outdated and framed in reproductive-focused, heteronormative, and androcentric ways. I discuss how A&P textbooks should be updated to represent current, accurate, and inclusive content on sexual pleasure and sexual health so that students can improve their possible professional futures as health care providers, personal sexual experiences, and feelings of inclusion and belonging. To explore further how sexual pleasure is represented in A&P courses, I sought to discover how
instructors teach about sexual pleasure and their perceptions of teaching sexual pleasure in A&P courses. Instructors play a vital role in helping students learn in a classroom, including biology classrooms such as anatomy and physiology. Using the Teacher-Centered Systemic Reform (TCSR) model, I interviewed six instructors to answer the following research question: What are instructors’ practices and perceptions of teaching sexual pleasure in undergraduate A&P courses? Interviews were coded using constant comparison analysis to explore emergent codes in the interview data from the categories established in the TCSR model. Only two out of six instructors teach explicitly about sexual pleasure, while the rest teach about sexual function. The instructors teach about sexual function and pleasure briefly from functional and developmental perspectives. Instructors reported a myriad of obstacles in teaching sexual function and pleasure, despite recognizing the benefits that students will gain from learning about sexual pleasure in A&P. This work shows that sexual pleasure is not well represented in A&P courses. Including sexual pleasure as a learning outcome in the A&P curriculum can not only provide training to students for their future healthcare professions, but more importantly empower students to pursue positive sexual experiences and take ownership of their sexual health.
REPRESENTATIONS AND PERCEPTIONS OF SEXUAL PLEASURE IN UNDERGRADUATE ANATOMY AND PHYSIOLOGY (A&P) COURSES

BY

BRENDA K. ANAK GANENG
©2022 Brenda K. Anak Ganeng

A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE MASTER OF SCIENCE

DEPARTMENT OF BIOLOGICAL SCIENCES

Thesis Director:
Brenda K. Anak Ganeng
ACKNOWLEDGEMENTS

This work would not have been possible without the groups and individuals behind the scenes that have accompanied me along the way. Firstly, I am immensely grateful for my thesis advisor, Dr. Heather E. Bergan-Roller, who has not only molded me to be the researcher I am today, but has supported me tirelessly in both emotional and intellectual capacities. I would not be where I am today without her. I thank the Department of Biological Sciences and the Human Anatomical Sciences (HAS) program at Northern Illinois University for providing me with the coursework I needed to become an anatomist and securing the resources needed for this study. I am thankful for the Bergan-Roller Biology Education Research (BBER) group, including Christina Cline, Erin Rowland, Sakina Shabbir, Madeleine Hoeppner, Brianna Negrete McGinley, and Emily Calgaro for their input and feedback on earlier versions of this paper. I thank AAA, HAPS, and SABER for circulating the survey to recruit instructors in obtaining textbook recommendations and instructors who participated in the survey that recommended the textbooks analyzed in the study. Thank you to my many mentors that realized my potential as an academic and motivated my pursuit of this research topic, particularly Dr. Megan Loumagne Ulishney of the University of Nottingham who first created the avenue for me to explore research on sexual pleasure. I am grateful for the companions that offered their shoulders to cry on and genuine friendship during this incredibly difficult process, especially roommates Emely and Carly, best friends Constance and Amelia, and my families-away-from-home including the
Lindquists and the Matanguihans. Finally, BKAG is eternally grateful for her family’s unconditional love and relentless support in her academic journey, particularly parents Marianna and Ganeng, siblings Isabella, Alex, Matt, and Joel, and nephew Akaash Matthew. I am aware that there may be many things in this paper and the challenges I choose to face in academia you may not understand, but you continuously believed in me every step of the way regardless.
## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF TABLES</td>
<td>v</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>vi</td>
</tr>
<tr>
<td>LIST OF APPENDICES</td>
<td>vii</td>
</tr>
<tr>
<td>REPRESENTATIONS OF SEXUAL PLEASURE IN A&amp;P TEXTBOOKS</td>
<td>1</td>
</tr>
<tr>
<td>Background and Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Methods</td>
<td>7</td>
</tr>
<tr>
<td>Results</td>
<td>14</td>
</tr>
<tr>
<td>Discussion</td>
<td>31</td>
</tr>
<tr>
<td>Conclusion</td>
<td>38</td>
</tr>
<tr>
<td>INSTRUCTORS’ PRACTICES AND PERCEPTIONS OF TEACHING SEXUAL PLEASURE IN A&amp;P COURSES</td>
<td>39</td>
</tr>
<tr>
<td>Introduction</td>
<td>39</td>
</tr>
<tr>
<td>Methods</td>
<td>41</td>
</tr>
<tr>
<td>Results</td>
<td>45</td>
</tr>
<tr>
<td>Discussion</td>
<td>59</td>
</tr>
<tr>
<td>OVERARCHING CONCLUSIONS AND FUTURE DIRECTIONS</td>
<td>61</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>63</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>69</td>
</tr>
</tbody>
</table>
LIST OF TABLES

Table 1. List of 14 unique human A&P textbooks................................................................. 9

Table 2. The number of times textbooks were recommended by 50 instructors .................. 15

Table 3. Definitions of emergent topics of sexual pleasure found in textbooks .................... 16

Table 4. Anatomical structures involved in sexual pleasure .................................................. 17

Table 5. Innervation and hormones related to sexual pleasure .............................................. 20

Table 6. Details of sections on models of human sexual response ....................................... 22

Table 7. Details of the instructors who participated in this study ......................................... 43

Table 8. Codes found within the categories of the TCSR model ......................................... 45
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1</td>
<td>Interrelatedness of sexual health and reproductive health</td>
<td>2</td>
</tr>
<tr>
<td>Figure 2</td>
<td>The textbook selection process</td>
<td>8</td>
</tr>
<tr>
<td>Figure 3</td>
<td>The Teacher-Centered Systemic Reform (TCSR) Model with presumed factors</td>
<td>40</td>
</tr>
<tr>
<td>Figure 4</td>
<td>The TCSR Model adapted with codes found</td>
<td>47</td>
</tr>
</tbody>
</table>
# LIST OF APPENDICES

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. APPROVAL EMAIL 2021-2022 .................................................................. 69</td>
<td></td>
</tr>
<tr>
<td>B. IRB APPROVAL LETTER – CONTINUE, EXPEDITED 2022-2023 ........................ 73</td>
<td></td>
</tr>
<tr>
<td>C. TEXTBOOK AND INSTRUCTOR RECRUITMENT SURVEY ...................................... 76</td>
<td></td>
</tr>
<tr>
<td>D. TEXTBOOK ANALYSIS DATA COLLECTION TABLES ........................................... 88</td>
<td></td>
</tr>
<tr>
<td>E. NUMBER OF VISUAL REPRESENTATIONS OF SEXUAL PLEASURE (TEXTBOOKS) .......... 90</td>
<td></td>
</tr>
<tr>
<td>F. INSTRUCTOR INTERVIEW PROTOCOL AND QUESTIONS ....................................... 92</td>
<td></td>
</tr>
<tr>
<td>G. INSTRUCTOR INTERVIEW CONSENT FORM ................................................... 99</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER 1

REPRESENTATIONS OF SEXUAL PLEASURE IN A&P TEXTBOOKS

Background and Introduction

Sexual health is an important facet of individual health. The World Health Organization (WHO) defines sexual health as (emphasis ours):

“…a state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence. For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled” (WHO, 2006).

A key feature to note in the definition of sexual health above is the emphasis placed on both positive (e.g., sexual pleasure) and absence of negative (e.g., disease, violence) aspects of sexual health (WHO, 2006). In this work, we will focus on how sexual pleasure is an important part of any positive sexual experience (Figure 1)

Figure 1. A conceptual model that represents the nested concepts of sexual health, sexual experience, and sexual pleasure and the interrelatedness of sexual health and reproductive health.
Sexual experiences are not well-defined phenomena, but historical bodies of work in human sexual response attempt to provide some framework on the anatomical and physiological occurrences when humans engage in sexual experiences (Basson, 2000; Kaplan, 1979; Kinsey et al., 1949, 1998; Levin, 2008; Masters & Johnson, 1966). All these bodies of work include sexual pleasure as a large component of the sexual experience, as is consistent with the WHO definition of sexual health above. The working definition for sexual pleasure provided by the Global Advisory Board for Sexual Health and Wellbeing (GAB) states that:

“Sexual pleasure is the physical and/or psychological satisfaction and enjoyment derived from solitary or shared erotic experiences, including thoughts, dreams and autoeroticism. Self-determination, consent, safety, privacy, confidence and the ability to communicate and negotiate sexual relations are key enabling factors for pleasure to contribute to sexual health and wellbeing. Sexual pleasure should be exercised within the context of sexual rights, particularly the rights to equality and non-discrimination, autonomy and bodily integrity, the right to the highest attainable standard of health and freedom of expression. The experiences of human sexual pleasure are diverse and sexual rights ensure that pleasure is a positive experience for all concerned and not obtained by violating other people’s human rights and wellbeing” (GAB, 2018).

The concept that sexual pleasure has a positive impact on sexual health (Figure 1) and therefore, overall individual health and wellbeing is an extensively documented and well-understood idea (Anderson, 2013; Castellanos-Usigli & Braeken-van Schaik, 2019; Hull, 2008). In Maslow’s Hierarchy of Needs, sex is placed as a basic physiological need that is important to achieve for survival before moving up the hierarchy to more complex levels of need (Maslow, 1943). Sexual pleasure is a common physiological process that the majority of the human population experiences either with or without the goal of reproducing (Figure 1). In addition, sexual pleasure is a primary motivator to pursue sexual behavior for humans (Hill & Preston, 1996; Leigh, 1989; Patrick et al., 2007). It is important to note that reproduction is the least cited
motivator for pursuing sexual experiences in these papers. As such, sexual pleasure is an important part of sexual health and wellbeing (Figure 1).

Despite the importance of sexual pleasure in sexual health and repeated calls to include pleasure in sexual health programming, health promotion efforts in many parts of the world tend to focus on reproductive health, and neglect topics on sexual health, particularly those that include sexual pleasure (Allen, 2007; Fine, 2011; Singh et al., 2021). This lack of inclusion of sexual pleasure may be due to several reasons. First, sexual health is often neglected with only reproductive health being included. Sexual and reproductive health are distinct facets of health but inextricably linked (Figure 1), which occurrences in one may impact on the other (WHO, 2017). In the context of anatomy, there is substantial overlap between the structures involved in these two facets of health. For example, the vagina is the canal in which the penis enters during heterosexual intercourse and is also the canal in which a baby is commonly born. The interrelated nature of sexual and reproductive health could be a potential reason why sexual health is often omitted or nested under the umbrella of reproductive health, rather than distinct from reproductive function.

Second, in Biology, concepts and mechanisms are often taught because of direct connections to the survival of the human species. For example, students are taught about the mechanisms of digestion in the stomach because this process is essential to human life. However, bodies of work demonstrate that there is a lack of consensus surrounding the biological function of sexual pleasure, particularly female sexual pleasure, for human survival (De la Garza-Mercer, 2007; Lloyd, 2009; O’Connell et al., 2005). Therefore, there is more emphasis on reproduction when sexual function is discussed due to a clear understanding of the function of reproduction in the survival of the species.
Third, many societal and cultural norms sensor pleasure from sexual health programming. These include religious views on the sanctity of sex solely within the boundaries of marriage and condemnation of non-heteronormative behavior (Coleman & Bockting, 2013; Foucault, 1990; Hawkes, 2004) negative attitudes towards certain sexual behaviors such as masturbation (Coleman & Bockting, 2013), gender inequality and patriarchy where harsh judgments are placed on women’s sexual behavior and desires (Allison & Risman, 2013; Hamilton & Armstrong, 2009), and disregard for sexual pleasure experienced by disabled persons and members of the LGBTQIA+ community (Coleman & Bockting, 2013; Karkazis, 2008; Tepper, 2000; Vida, 2019). Discussing sexual pleasure in the context of a biology curriculum is unexplored and could have the potential to promote healthy sexual experiences and signal the inclusion of members of society that are often forgotten in sexual health programming.

**Anatomy and Physiology**

In human anatomy and physiology (A&P) courses, students learn the organization of anatomical structures and physiological processes in the human body and how they work together. A&P courses are often organized by human body systems, where students learn about groups of organs and tissues that serve a particular function in the body. Examples include the digestive system, nervous system, and reproductive system. While there typically is no system in A&P courses allocated to sexual function specifically, it would be inaccurate to deny that such a system exists.

Sexual pleasure should form an important component of discussions surrounding sexual health to provide A&P students with a strong understanding of human sexual systems. Since A&P courses provide students with the foundational knowledge of all human body systems,
A&P courses often function as pre-requisites for students who intend to go on to careers as health practitioners including nursing, kinesiology, and physical therapy. The WHO emphasizes the need to train healthcare professionals that are competent, non-judgmental, and comfortable with addressing topics of sexual pleasure when providing sexual health services (WHO, 2017). Healthcare professionals have reported that they feel ill-trained or less confident to address their patients’ issues regarding sexual experience and pleasure after a particular treatment or onset of disease (Hautamäki et al., 2007; Kotronoulas et al., 2009; Steinke et al., 2011). Undergraduate A&P courses that includes sexual pleasure could contribute to improving health care around sexual health.

In addition, pleasure-inclusive messages during sexual health programming could also improve A&P students’ sexual health because the implementation of pleasure in sexual health education has shown a significant increase in rates of safer sex among the participants and better communication with sexual partners about their needs and desires (Ford et al., 2019). Further, the human bodies that are represented in A&P courses could be informing what students perceive to be as “normal”. Therefore, A&P courses should represent the real diversity of human bodies. Taken together, A&P students should learn about sexual health and therefore sexual pleasure to improve their possible professional futures as health care providers, personal sexual experiences, and feelings of inclusion and belonging.

**Textbooks**

Textbooks are an important comprehensive resource and reference for students in their learning process. In courses like A&P where students commonly encounter concepts involving human health, textbooks could serve as a reliable resource in learning healthy behaviors to be
implemented outside the classroom. For example, findings show that textbooks serve as a primary source for health information among students in many countries and are effective in improving knowledge, attitudes, beliefs, and skills of practicing healthy behaviors (Nomoto et al., 2011).

Additionally, textbooks serve as an important resource for instructors. Instructors are not typically experts in every topic which they are expected to teach and are likely to use a textbook to inform the content and depth of coverage. Textbooks are used as a significant source of guidance for curriculum design and lesson planning at all levels of education, ensuring that students receive the knowledge they need on the appropriate level (Digisi & Willett, 1995; Watt, 2015). Textbooks could serve as an important guide for instructors when designing lessons on sexual anatomy and physiology.

Despite the importance of textbooks, textbook analyses commonly reveal inadequacies in the coverage of important topics. For example, textbooks used in K-12 sexual health education take a risk-based approach that is based on the prevention of pregnancy and sexually transmitted infections (Donati et al., 2000; García-Cabeza & Sánchez-Bello, 2013; McKay & Holowaty, 1997). While less work has been done to understand sexual health education resources in higher education, similar trends are seen. For example, Social Work textbooks have been shown to portray sex-negative views and excluded important sex-related terms (Prior et al., 2016). Further, these social work textbooks (Prior et al., 2016) and anatomy textbooks used in Australian medical schools (Parker et al., 2017) lack inclusivity by centering heteronormativity and representations of White males, respectively.
Purpose Statement

The purpose of this descriptive, qualitative study is to investigate: How is sexual pleasure represented in undergraduate, combined human anatomy and physiology A&P textbooks? Specifically, we investigated the following research questions (RQ):

RQ1: What topics are associated with sexual pleasure in undergraduate human A&P textbooks?

RQ2: How are topics on sexual pleasure framed in undergraduate human A&P textbooks?

Methods

This work received approval from our institutional review board (#HS21-0360) (APPENDICES A and B).

Textbook Selection

We were interested in obtaining “undergraduate human A&P” textbooks, which are defined as textbooks that combine topics of anatomy and physiology, are specific to humans, and are used in undergraduate courses. We were not interested in obtaining separated human anatomy or human physiology textbooks that are often used in higher-level undergraduate biology courses or graduate-level schools, like medical and dental schools.

To obtain the textbooks for analysis, a survey was sent out to instructors of A&P via listserv to three organizations – Society for the Advancement of Biology Education Research (SABER), American Association for Anatomy (AAA), and Human Anatomy and Physiology Society (HAPS) (APPENDIX C). The responses were first cleaned to exclude responses from
incomplete surveys, providing unique responses from 71 instructors (Figure 2). Second, textbooks were excluded if they were recommended by instructors that either taught separated human anatomy or human physiology courses or did not assign any textbook, resulting in responses from 50 instructors that have taught combined human A&P courses and assigned textbook(s). Third, textbooks were excluded that either only addressed human anatomy or human physiology or were created and published only to be used for the courses taught by the author at their institution (i.e., “internally published”). Of the remaining responses, instructors often recommended the same textbook (further described and explained in Results). This inclusion process resulted in a final list of 14 unique human A&P textbooks (Table 1). In Table 1, the textbooks were organized in numerical order based on how frequently they were recommended such that the textbook that was recommended by the most instructors is listed as “1” and the textbooks reported by fewer instructors are listed by proceeding numbers. The textbooks are referenced by their assigned numbers (e.g., “Book 4”) herein.

![Diagram of textbook selection process](image)

**Figure 2.** The textbook selection process with inclusion (blue boxes) and exclusion criteria (free text).
Table 1. List of 14 unique human A&P textbooks used as a data source for analysis ordered from most frequently recommended by instructors in response to our survey (Book 1) to least.

<table>
<thead>
<tr>
<th>Book</th>
<th>Title</th>
<th>Author(s)</th>
<th>Edition</th>
<th>ISBN</th>
<th>Year</th>
<th>Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Anatomy &amp; Physiology: The Unity of Form and Function</td>
<td>Kenneth Saladin</td>
<td>9th</td>
<td>9781260256000</td>
<td>2020</td>
<td>McGraw-Hill</td>
</tr>
<tr>
<td>2</td>
<td>Human anatomy &amp; physiology</td>
<td>Elaine Nicpon Marieb, Katja Hoehn</td>
<td>11th</td>
<td>9780134580999</td>
<td>2018</td>
<td>Pearson</td>
</tr>
<tr>
<td>4</td>
<td>Anatomy and physiology</td>
<td>OpenStax College</td>
<td>Jan 2021</td>
<td>9781938168307</td>
<td>2021</td>
<td>Rice University</td>
</tr>
<tr>
<td>5</td>
<td>Principles of anatomy and physiology</td>
<td>Bryan H. Derrickson, Gerard J. Tortora</td>
<td>16th</td>
<td>9781119662686</td>
<td>2020</td>
<td>Wiley</td>
</tr>
<tr>
<td>7</td>
<td>Hole’s human anatomy &amp; physiology</td>
<td>David Shier, Jackie Butler, Ricki Lewis</td>
<td>15th</td>
<td>9781259864568</td>
<td>2019</td>
<td>McGraw-Hill</td>
</tr>
<tr>
<td>8</td>
<td>Essentials of anatomy &amp; physiology</td>
<td>Frederic Martini, Edwin F. Bartholomew</td>
<td>8th</td>
<td>9780135203804</td>
<td>2020</td>
<td>Pearson</td>
</tr>
<tr>
<td>9</td>
<td>Visual anatomy &amp; physiology</td>
<td>Frederic Martini, Claire E. Ober, Kathleen Welch, R.T. Hutchings</td>
<td>3rd</td>
<td>9780134394695</td>
<td>2018</td>
<td>Pearson</td>
</tr>
<tr>
<td>10</td>
<td>Human anatomy &amp; physiology</td>
<td>Erin Amerman</td>
<td>2nd</td>
<td>97801345553511</td>
<td>2018</td>
<td>Pearson</td>
</tr>
</tbody>
</table>

Continued on next page
<table>
<thead>
<tr>
<th>11</th>
<th>Anatomy and physiology: From science to life</th>
<th>Gail W. Jenkins, Gerard J. Tortora</th>
<th>3rd</th>
<th>9781118129203</th>
<th>2013</th>
<th>Wiley</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Essentials of human anatomy &amp; physiology</td>
<td>Elaine Nicpon Marieb, Suzanne M. Keller</td>
<td>12th</td>
<td>9781292216119</td>
<td>2018</td>
<td>Pearson</td>
</tr>
<tr>
<td>13</td>
<td>Anatomy &amp; physiology</td>
<td>Kevin T. Patton, Gary A. Thibodeau</td>
<td>10th</td>
<td>9780323528900</td>
<td>2019</td>
<td>Mosby</td>
</tr>
<tr>
<td>14</td>
<td>Seeley’s anatomy &amp; physiology</td>
<td>Cinnamon VanPutte, Jennifer Regan, Andrew Russo, Rod Seeley</td>
<td>12th</td>
<td>9781260172195</td>
<td>2019</td>
<td>McGraw-Hill</td>
</tr>
</tbody>
</table>
Definitions

It is important to clarify the definition of some of the terms used throughout this paper. The terms “male(s)” and “female(s)” references biological sex assigned at birth, with no reference to gender. Some individuals’ gender identity differs from their assigned sex at birth. In the context of this paper, any use of the prefix "cis" refers to individuals whose gender identity and assigned sex at birth align, while the prefix "trans" refers to individuals whose gender identity differs from their assigned sex at birth. We also acknowledge the presence of intersex individuals as defined by the United Nations as people “born with sex characteristics (including genitals, gonads, and chromosome patterns) that do not fit typical binary notions of male or female bodies” (UN, 2015).

The “representation” of sexual pleasure content is defined as the textual and visual presence of anatomy and physiology related to sexual pleasure. Textual representations of sexual pleasure are defined as textual fragments that contain content on sexual pleasure as defined by the GAB (2018) presented above, where each textual fragment was treated as one analytical unit. Textual fragments could range from one sentence to a paragraph of content on sexual pleasure. Visual representations are defined as visuals that contain content on sexual pleasure as defined by the GAB (2018), address sexual pleasure in the figure legend, or are pointed to by a textual fragment that references sexual pleasure (e.g., “Flanking the vaginal opening are the pea-sized greater vestibular glands (Figure 27. 19b)”, Book 2).

Content Analysis

The final 14 textbooks were analyzed for content on sexual pleasure, including topics (RQ1) and framing (RQ2). We chose to collect data only from chapters on the reproductive system because these chapters are most likely to include content on sexual experiences as sexual
health is often categorized under the same umbrella as reproductive health (WHO, 2017). Similarly, an analysis of nursing A&P textbooks for LGBTQIA+ content also examined reproductive chapters because that is most likely where information concerning sexual experiences would be (Ray King et al., 2021).

Textual fragments and visuals related to sexual pleasure were identified through a broad reading of all the reproductive chapters. This involved open-coding for words and images associated with sexual pleasure, such as “pleasure”, “arousal” and “orgasm” or an image of an erect penis. Then, each textual fragment and visual were coded for content to identify topics (i.e., codes) relating to sexual pleasure. Finally, topics were refined by repetition of the previous stages. Details on the textual fragments and visuals were collected using analytical tables adapted from García-Cabeza & Sánchez-Bello’s study (2013) on sex education representations in textbooks used in secondary school (APPENDIX D).

Textual fragments and visuals could contain more than one topic and were coded for multiple topics where applicable. The definitions of the topics were based on content as indicated in textbooks, not from the researchers’ a priori knowledge. For example, we identified anatomical structures and physiological processes that were indicated by textbooks as being related to sexual pleasure and excluded anatomy and physiology that were not indicated by textbooks as being related to sexual pleasure.

Data collected (examples in APPENDIX D) included the textbook, the larger chapter section, and the smaller sub-section the textual fragment or visual was grouped under. The page where these section(s) and sub-section(s) were located were also recorded. The “format” of the visual indicated the type of visual media used, either an illustration that is drawn or computer-generated or a photograph. “Description” of visuals and “Degree of depth” of textual fragments
were recorded to explore the context and nuance in which sexual pleasure was represented. The topic(s) contained within the textual fragment or visual image was recorded in the “topic” column of the data collection and analysis table.

**Emergent Thematic Analysis**

The data collected was then analyzed via emergent thematic analysis (Braun & Clarke, 2006). First, the data was looked at holistically to identify consistent patterns that stood out. For example, we observed in textbooks a pattern of males often being placed as the standard to which females were compared. Then, we categorized these patterns under distinct themes that emerged from the data. The pattern of placing males first before females would be an example of androcentrism as a theme that was present heavily in the data.

**Positionality Statement**

We acknowledge that this work was informed by our positionalities and professional disciplinary backgrounds and interests which include sexual anatomy and physiology (BKAG), biology education research (HBR), qualitative methods (RR), teaching and research in anatomical sciences (KS), and LGBTQ+ U.S. history and women’s gender and sexuality studies (AL). All the authors in this study also identify as women.

This study was led by author BKAG under the mentorship of the other authors. BKAG embraces a feminist worldview that emphasizes equal representation of women’s thoughts and opinions with that of the dominant narrative from men and attention to gender inequality. BKAG acknowledges the historical inequality that has silenced women’s voices over the years. This positionality has informed the study design that includes particular attention on comparing how females are represented in A&P textbooks compared with males. BKAG also embraces a sex-positive worldview that regards all consensual sexual expression as healthy and pleasurable.
BKAG affirms the Declaration on Sexual Pleasure by the World Association of Sexual Health that asserts sexual pleasure to be integrated into “education, health promotion and service delivery” of sexual health, emphasizes sexual pleasure as a fundamental human right, and asserts sexual pleasure as an integral part of the “human experience and subjective well-being” (World Association for Sexual Health, 2019). BKAG acknowledges that this worldview motivated her to pursue the research questions in this study.

Results

Textbook Recommendations

Fourteen unique textbooks were recommended by fifty instructors (Table 2). Saladin’s *Anatomy and Physiology: Unity of Form and Function* (Book 1) was the most frequently recommended by 13 out of 50 instructors, followed closely by Marieb and Hoehn’s *Human Anatomy and Physiology* (Book 2), recommended by 11 instructors. Four books were recommended less frequently by eight (Books 3, 4) and six (Books 5, 6) instructors. The remaining eight books were recommended infrequently by three (Book 7), two (Books 8, 9), or just one instructor (Books 10-14).
Table 2. The number of times textbooks were recommended by 50 instructors. Textbooks were organized in ascending numerical order based on the frequency of recommendations. Multiple textbooks could be recommended by each instructor, so percentages do not add up to 100.

<table>
<thead>
<tr>
<th>Book</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13</td>
<td>26%</td>
</tr>
<tr>
<td>2</td>
<td>11</td>
<td>22%</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>16%</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>16%</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>12%</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>12%</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>2%</td>
</tr>
</tbody>
</table>
RQ1: What topics are associated with sexual pleasure in undergraduate human A&P textbooks?

Five major topics related to sexual pleasure were found in the textbooks: sexual anatomy, sexual physiology, models of human sexual response, sexual activity, and sexual dysfunction. Table 3 includes the definitions for each topic based on content related to sexual pleasure found in textbooks.

**Table 3. Definitions of emergent topics of sexual pleasure found in textbooks.**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Definition in Context of Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual anatomy</td>
<td>Anatomical structures and changes in these structures that are involved in sexual pleasure</td>
</tr>
<tr>
<td>Sexual physiology</td>
<td>Physiological processes involved in sexual pleasure, with a focus on innervation and hormones which are primary biological mechanisms that mediate human sexual pleasure</td>
</tr>
<tr>
<td>Models of human sexual response</td>
<td>Phases of the human sexual response during a sexual experience that include sexual pleasure</td>
</tr>
<tr>
<td>Sexual activity</td>
<td>Activities involved in experiences of sexual pleasure</td>
</tr>
<tr>
<td>Sexual dysfunction</td>
<td>Conditions that directly or indirectly disrupt one’s sexual pleasure</td>
</tr>
</tbody>
</table>

**Sexual Anatomy**

*Textual Representations.* Textbook descriptions of female sexual anatomy related to sexual pleasure involved a wide variety of structures (Table 4). Two female anatomical structures associated with sexual pleasure were included across all 14 textbooks: the clitoris and vagina. The clitoris was often described as the main source of feelings of sexual pleasure when stimulated. Quotations about the clitoris are included below:

“Stimulating the clitoris produces pleasurable sensations associated with the female orgasm” (Book 9, p. 1014)
“Like the male structure, the clitoris is capable of enlargement upon tactile or other stimulation and has a role in sexual excitement in the female” (Book 11, p. 955)

“Well supplied with sensory receptors, [the clitoris] initiates and intensifies levels of sexual sensation” (Book 14, p. 1062)

The vagina was primarily described as a copulatory organ that provided pleasure to the penis and not the female. Specifically, the function of the vagina in sexual pleasure was described as providing stimulation to the penis during heterosexual intercourse and providing lubrication for smoother and more pleasurable sexual intercourse. For example, Book 1 states that the “tactile and pressure sensations produced by vaginal massaging of the penis further accentuate the erection reflex” (Book 1, p. 1029). The function of the vagina in providing sexual pleasure to the female was not stated in textbooks.

Table 4. Anatomical structures involved in sexual pleasure as stated by textbooks, organized by biological sex the structure belonged to but not who experiences the pleasure, and the number of textbooks that included each structure in parentheses.

<table>
<thead>
<tr>
<th>Female (n)</th>
<th>Male (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clitoris (14)</td>
<td>Penis (14)</td>
</tr>
<tr>
<td>Vagina (14)</td>
<td>Bulbourethral glands (13)</td>
</tr>
<tr>
<td>Greater vestibular glands (11)</td>
<td>Cremaster muscle/scrotum/testes (10)</td>
</tr>
<tr>
<td>Bulbs of vestibule (10)</td>
<td></td>
</tr>
<tr>
<td>Breasts/nipples (8)</td>
<td></td>
</tr>
<tr>
<td>Uterus (3)</td>
<td></td>
</tr>
<tr>
<td>Labia (2)</td>
<td></td>
</tr>
<tr>
<td>Cervix (2)</td>
<td></td>
</tr>
<tr>
<td>G-spot (1)</td>
<td></td>
</tr>
<tr>
<td>Earlobes (1)</td>
<td></td>
</tr>
</tbody>
</table>

Other frequently cited female anatomical structures were the greater vestibular or Bartholin’s glands and the bulbs of vestibule (Table 4). According to textbooks, the bulbs of vestibule directly provide pleasure during a sexual experience by engorging in blood and
increasing in sensitivity. The textbooks describe that the greater vestibular glands do not directly provide sexual pleasure, and instead help to lubricate the vagina in preparation for smoother heterosexual intercourse. Examples of textual fragments concerning both the greater vestibular or Bartholin’s glands and the bulbs of vestibule are included below to give a general idea of their indicated functions in sexual pleasure across textbooks:

“During sexual arousal, a pair of ducts discharges the secretions of the greater vestibular glands into the vestibule near the vaginal entrance” (Book 8, p. 660)

“On either side of the vaginal orifice is an erectile body called the bulb of the vestibule, which engorges with blood and increases in sensitivity during sexual intercourse” (Book 3, p. 1123)

Breasts and/or nipples were also included in eight books as being involved in sexual pleasure. While they were stated as not directly providing feelings of sexual pleasure, breasts and nipples were often described as being swollen and erect, respectively, during sexual excitement. For example, “The response begins with excitement phase, … the nipples become erect as a result of the blood engorgement in the mammal glands” (Book 3, p. 1127). Less frequently cited structures of female sexual pleasure included uterus, cervix, G-spot or female prostate, and earlobes (Table 4).

Textbook descriptions of male sexual anatomy related to sexual pleasure involved fewer structures compared to females but were more commonly included among textbooks. All 14 books stated that the penis was the main anatomical structure that provided sexual pleasure in males. Other structures associated with male sexual pleasure included the bulbourethral glands and the cremaster muscle of the testes and scrotum. These structures generally were stated in textbooks as indirectly providing pleasure through their involvement in sexual arousal or aiding in the sexual experience as shown in the following examples:
“During sexual arousal, [bulbourethral glands] produce pre-ejaculate, a clear slippery fluid that lubricates the head of the penis in preparation for intercourse” (Book 1, p. 1019)

“When [the cremaster] muscle contracts during sexual arousal or in response to cool temperature, it tenses and pulls the testes closer to the body” (Book 9, p. 1001)

Visual Representations. The majority of visuals related to sexual pleasure exhibited sexual anatomy (APPENDIX E) and were often depicted as illustrations, rather than photographs. The textbooks contained an average of three visuals of male sexual anatomy and ranged from one (Book 3) to six (Book 6) (APPENDIX E). Books 1, 4, and 5 exhibited the appearance of an erect penis when sexually aroused. The rest of the textbooks contained visuals of unaroused, external male genitals but made direct references in textual fragments to the function of male genitals in sexual pleasure.

Similar to males, an average of three visuals of female sexual anatomy were included in the textbooks and ranged from zero (Book 4) to six (Book 11). Only Book 1 included a visual that showed anatomical changes during an experience of sexual pleasure, depicting the different positions of the uterus and cervix during heterosexual intercourse. Unlike males, there were no visuals in any textbook on the changes that occurred to the external female genitals when aroused and in an erect state.

Sexual Physiology

Textual Representations. Sexual physiology, specifically innervation and hormones involved in experiences of sexual pleasure, varied across textbooks (Table 5). Innervation refers to the nerves that supply one or a set of anatomical structures to carry out the structure’s function. Hormones refer to substances that move to a structure or set of structures to perform a
particular function. The most consistent content across the majority of the textbooks was parasympathetic innervation for sexual arousal in females and males.

**Table 5.** Innervation and hormones related to sexual pleasure included across textbooks and organized by sex. The number of textbooks that included each topic is in parentheses.

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Innervation</strong></td>
<td>Parasympathetic for arousal (9)</td>
<td>Parasympathetic for arousal (11)</td>
</tr>
<tr>
<td></td>
<td>Sympathetic for orgasm (5)</td>
<td>Sympathetic for orgasm (9)</td>
</tr>
<tr>
<td></td>
<td>Spinal reflex for orgasm (2)</td>
<td>Spinal reflex for orgasm (2)</td>
</tr>
<tr>
<td></td>
<td>Pudendal nerves (1)</td>
<td></td>
</tr>
<tr>
<td><strong>Hormones</strong></td>
<td>Testosterone (5)</td>
<td>Testosterone (12)</td>
</tr>
<tr>
<td></td>
<td>Estrogens (6)</td>
<td>Estrogen (4)</td>
</tr>
<tr>
<td></td>
<td>Oxytocin (3)</td>
<td>Oxytocin (3)</td>
</tr>
<tr>
<td></td>
<td>Dehydroepiandrosterone (DHEA) (2)</td>
<td></td>
</tr>
</tbody>
</table>

Female sexual physiology was often excluded from books and varied more than males. Only nine books mentioned parasympathetic innervation for female sexual arousal (Table 5). Out of the few books that mentioned innervation related to female orgasm, five books indicated sympathetic innervation as responsible for female orgasm, and three books stated otherwise, either impulses traveling over pudendal nerves with no indication on the type of innervation (Book 6) or reflex responses (Books 7 and 13).

Nine books included hormones in discussions of female sexual pleasure. Among these nine books, estrogens and testosterone were most often associated with female sexual drive (i.e., libido), while oxytocin was associated with female orgasm. Examples of textual fragments that discuss the hormones of female sexual pleasure are included below:

“Female libido seems to be driven by both estrogens and dehydroepiandrosterone (DHEA), an androgen produced by the adrenal cortex” (Book 2, p. 1079)
“The female sex drive, like the sex drive in males, depends on hormones” (Book 13, p. 1072)

“Among the important general functions of estrogens are… affecting CNS activity, especially in the hypothalamus, where estrogens increase the sexual drive” (Book 5, p. 1136)

Content on male sexual physiology was primarily focused on libido. Across all books, testosterone was described as playing the most significant role in male libido, as indicated in the examples below:

“[Testosterone] is the basis of the male libido (sex drive)” (Book 2, p. 1060)

“Peripheral Effects of Testosterone: Effects on CNS, including maintaining libido (sexual drive) and related behaviors” (Book 9, p. 1011)

Some books included estrogens as aiding in the sexual drive of males (Books 1, 4, 13, 14). Hormones involved in male orgasm varied and were included only in three books, with oxytocin being cited the most consistently.

Visual Representations. Male sexual physiology was over-represented in visuals compared to female sexual physiology, with male sexual physiology shown in all but 1 textbook (Book 12) and female sexual physiology shown in only one textbook (Book 7, APPENDIX E). Visuals on male sexual physiology across all books primarily addressed the mechanisms of feedback in testosterone regulation and their role in libido. Fewer books exhibited changes of innervation and hormones during sexual activity. The one visual on female sexual physiology showed a flowchart of the innervation and hormonal mechanisms involved in secretion, lubrication, and orgasm in the female. While other visuals involved mechanisms of feedback and hormone regulation in females, none made direct reference to sexual pleasure; rather, those visuals focused on reproductive functions and development of secondary sex characteristics, such as the menstrual cycle or the development of breasts and pubic hair.
Models of Human Sexual Response

Textual Representations. Models of human sexual response refer to the different stages of anatomical changes and physiological processes that demonstrate how the human body responds to sexual stimuli. Models of human sexual response varied greatly across textbooks (Table 6). The majority of textbooks included designated sections describing models of human sexual response (11 textbooks) that were separated into male and female subsections (9 textbooks). Fewer textbooks either had one section that combined male and female sexual responses (2 textbooks) or had no designated section for models of human sexual response (3 textbooks).

Table 6. Details of sections on models of human sexual response that were included in textbooks. The header “number of pages” shows the average number and variation of pages across textbooks assigned to male and female sexual response sections, where present. The header “female response indicated as comparable to male response” exhibits the number of books where female sexual response models were shorter and not described because they were stated as being similar to males.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designated section</td>
<td></td>
</tr>
<tr>
<td>Books that had a section</td>
<td></td>
</tr>
<tr>
<td>Separated by biological sex</td>
<td>9</td>
</tr>
<tr>
<td>Combined biological sex</td>
<td>2</td>
</tr>
<tr>
<td>Books that did not have a section</td>
<td>3</td>
</tr>
<tr>
<td>Number of pages</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>2 ± 1</td>
</tr>
</tbody>
</table>

Continued on following page
Table 6 (continued)

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>1 ± 1</th>
</tr>
</thead>
</table>

**Number of phases in model**

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 phases</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3 phases</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4 phases</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Unclear</td>
<td>7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 phases</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>4 phases</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Unclear</td>
<td>10</td>
</tr>
</tbody>
</table>

**Female response indicated as comparable to male response**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Similar</td>
</tr>
<tr>
<td></td>
<td>Distinct</td>
</tr>
<tr>
<td></td>
<td>Unclear</td>
</tr>
</tbody>
</table>

For the textbooks that did include models of sexual response, most did not explicitly state the phases involved (coded as “unclear”, 7 textbooks for males, 10 for females). Note that this pattern of not explicitly stating the phases involved was more apparent in descriptions of the
female sexual response. Other textbooks had clearly defined phases, albeit variable in number ranging from 2 to 4 in males and 3 to 4 in females).

Among textbooks where designated sections on models of sexual response were absent, discussions of human sexual response were integrated briefly in other sections. Phases then would often be described as a function of the sexual anatomical structure with no detailed description of the specific phases given. A majority of the time, the female sexual response was indicated as being comparable to the male response and not described separately (9 books). This resulted in female sexual response sections often lacking detail and shorter in length than the sections on male sexual response.

**Visual Representations.** Few textbooks included visuals of models of human sexual response (APPENDIX E). Five books included visuals of the human male sexual response and only two books included visuals of female sexual response. The visuals on human sexual response typically illustrated flowcharts of the progression of stages in the human sexual response during heterosexual intercourse. Some visuals included illustrations of anatomical changes that happen during each phase in the human sexual response.

**Sexual Activity**

**Textual Representations.** The only type of sexual activity included and described explicitly in textbooks was penetrative intercourse between a male and female. No other forms of sexual activity were found in the textbooks. References to sexual activity described pleasure as derived from the movement of the penis back and forth inside the vagina. Some examples of these include:
“In females, some responses also facilitate successful penetration by producing lubricating fluids and gently squeezing the penis to maintain stimulation of both partners” (Book 13, p. 1065)

“Once intromission (entry) is achieved, the tactile and pressure sensations produced by vaginal massaging of the penis further accentuate the erection reflex” (Book 1, p. 1029)

“…the excitement phase also is facilitated by somatosensory signals, such as the sensations of the penis in the vagina, or the caressing of parts of the body” (Book 7, p. 835)

While all books describe “tactile stimulation” of the penis or the clitoris for the experience of sexual sensations, only some books provided context on the source of the tactile stimulation. In these books, sexual pleasure of the male was obtained from the movement of the penis in the vagina during heterosexual intercourse. No books mention the source of tactile stimulation of the clitoris in sexual activity. Mentions of potentially other sexual activity include the “rhythmic massaging of the penis” (Book 14, p. 1055) and “touching the [female’s] genitals” (Book 11, p. 980). These vague descriptions could be referencing many different sexual activities, including masturbation, manual stimulation from a partner, or penetrative intercourse.

Visual Representations. Only one visual of sexual activity was exhibited in any textbook (Book 1, APPENDIX E). This visual depicted penetrative intercourse, with a female lying in the supine position and a sagittal view of the penis inside the vagina.

Sexual Dysfunction

Textual Representations. Descriptions of female sexual dysfunction were vague, included only in four books, and varied greatly across books. The four quotes below were the only content included on female sexual dysfunction across textbooks:

“Female orgasm is not required for conception. Indeed, some women never experience orgasm, yet are perfectly able to conceive” (Book 2, p. 1079)
“Other symptoms of menopause are headache, hair loss, muscular pains, vaginal dryness, insomnia, depression, weight gain, and mood swings.” (Book 5, p. 1150)

“Ovarian cysts may cause pain, pressure, a dull ache, or fullness in the abdomen; pain during sexual intercourse…” (Book 11, p. 947)

“When deprived of the stimulatory effects of estrogen [as a result of menopause],... The vagina becomes dry; intercourse may become painful (particularly if infrequent)” (Book 12, p. 598)

None of the textbooks explicitly refer to these conditions in the female as “dysfunctions”, but we included them under this topic because they describe a challenge in experiencing pleasure.

In contrast to females, male sexual dysfunctions were present in more textbooks (13) than female sexual dysfunction (4). The primary example of male sexual dysfunction included in all books, except book 12, was erectile dysfunction (ED). Descriptions for erectile dysfunction were extensive and reasons ranged from old age after male climacteric to psychological inhibitions. Statements on male erectile dysfunction were often indicated as being relatively common, for example: “Approximately 50% of American men over age 40 have some degree of erectile dysfunction (ED), the inability to attain an erection” (Book 2, p. 1054).

Other forms of male sexual dysfunction described in the textbooks included painful ejaculation from prostate enlargement or cancer (3 textbooks – Books 3, 7, 11) and decreased libido due to lower levels of testosterone in old age (7 textbooks).

**Visual Representations.** Only one visual on sexual dysfunction was present across all books; it showed a flowchart of the molecular pathways of Viagra to treat erectile dysfunction (APPENDIX E).

**RQ2: How are topics on sexual pleasure framed in undergraduate human A&P textbooks?**

Content on sexual anatomy and physiology were analyzed as being framed in three main emergent themes: reproductive-focused, androcentric, and heteronormative.
Reproductive-focused

Much of the content about sex was framed in a reproductive focus, with only some books explicitly stating the pleasurable function of sex. This focus on reproduction was primarily present in statements about the purpose of sexual intercourse as shown in the following examples:

“Although orgasm is a pleasurable component of sexual intercourse, it is not necessary for females to experience an orgasm for fertilization to occur” (Book 14, p. 1072)

“Reproductive hormones and other regulatory mechanisms give us the urge to have sex, which is often reinforced with the pleasant sensations that sexual activity can produce. “This sex drive is essential to success in producing offspring” (Book 13, p. 1037)

Additionally, there are several examples of broad concepts on sexual pleasure that are reproductive-focused in A&P textbooks. Among those is the common concept portrayed by textbooks that orgasm and male ejaculation are paired physiological processes. Examples of textbook quotes that show the pairing of orgasm and ejaculation are as follows:

“Orgasm in the male refers to the time period during which there are intense feelings of pleasure, a feeling of a release of tension, and expulsion of semen (i.e., ejaculation)” (Book 3, p. 1140)

“The culmination of sexual stimulation is orgasm (or’gazm), a pleasurable feeling of physiological and psychological release. Orgasm in the male is accompanied by emission and ejaculation” (Book 7, p. 838)

An orgasm and male ejaculation are in fact, two different physiological processes. Male ejaculation is a purely reproductive process that involves the ejection of semen from the penis, while an orgasm is characterized by the most intense feelings of sexual pleasure experienced during a sexual experience (UCSF, 2021). These two phenomena often occur simultaneously during a sexual response but can occur independently of one another. Only Book 1 made a clear distinction between orgasm and male ejaculation: “Ejaculation and orgasm are not the same…. 
Although they usually occur together, it is possible to have all the sensations of orgasm without ejaculating, and ejaculation occasionally occurs with little or no sensation of orgasm” (Book 1, p. 1030). It is not only inaccurate to synonymize orgasm with male ejaculation, but also an example of framing sexual pleasure as a side effect of reproduction, rather than a distinct phenomenon.

Other examples of reproductive-focused content included discussions of the function of external genitals in textbooks. Textual fragments often focused on the erection of the penis to successfully penetrate the vagina, but not often on the pleasurable sensations that are produced when the penis is stimulated. External genitals, like the penis and clitoris, were also often described to be “supporting”, “secondary” or “accessory” structures as exhibited in these quotes:

“The secondary sex organs are organs other than gonads that are necessary for reproduction. In the male, they constitute a system of ducts, glands, and the penis, concerned with sperm storage, survival, and delivery” (Book 1, p. 1008)

“In both males and females, the remaining reproductive structures – ducts, glands, and external genitalia are called accessory reproductive organs” (Book 2, p. 1042)

This statement implies that the penis and clitoris are secondary to reproduction. This is problematic because though the penis and clitoris are listed as secondary as it is not required for reproduction, these anatomical structures are primary structures involved in sexual pleasure and thus, still deserve attention. A particular problem exists in discussions of the clitoris as it may imply that female sexual pleasure, which is primarily obtained from stimulation of the clitoris, is not required for reproduction. Rather, the textbooks indicate that the ability to reproduce through a female’s primary sexual organs – the ovaries, uterus, Fallopian tubes – takes precedence over the experience of sexual pleasure.
Androcentric

The textbooks centered males, particularly in terms of sequence, arousal and development, and roles in the sexual experience. Sections and mentions of the male system consistently appeared before equivalent sections of the female system. The only exception to this structure was Book 3, where the female system was described first. We did not find any mentions of the sexual experiences of intersex individuals in textbooks.

Male sexual anatomy and sexual response were often described independently as the standard, whereas female sexual anatomy and sexual response were described in relation to the male in all the textbooks except one. Examples of these are shown below:

“Just anterior to the vestibule is the clitoris (kl it’ o-ris; “hill”), a small protruding structure composed largely of erectile tissue, which is homologous to the penis of the male.” (Book 2, p. 1067)

“The female sexual response is similar to that of males in most respects” (Book 10, p. 1053)

Only Book 1 reversed this comparison by describing male external genitals as homologous to female external genitals. Because most of the textbooks started with descriptions of males and then simply stated that females were similar, this resulted in shorter descriptions and fewer images of females (Table 6 and APPENDIX E).

Sexual arousal was a phenomenon often discussed as a standard of human male development, particularly during puberty. A prime example of this is the occurrence of wet dreams and nocturnal emission among teenage males that are of pubertal age, shown in the following examples:

“In the meantime, the young man has unexpected erections and occasional nocturnal emissions (“wet dreams”) as his hormones surge and the hormonal control axis struggles to achieve a normal balance” (Book 2, p. 1084; Book 12, p. 596)
“Boys experience growth in the testicles and penis, and they may begin to get erections at this time and experience ejaculations during the night” (Book 3, p. 1144)

“Spontaneous emission and ejaculation are common in sleeping adolescent males” (Book 7, p. 839)

Female sexual arousal was discussed only as a precursor to sexual intercourse and not included in discussions on female development. Discussions of female development were often more reproductive-focused and did not include any content on sexual arousal experienced by teenage females of pubertal age. Topics often discussed during female development included menarche and the development of secondary sex characteristics, such as breasts and pubic hair.

Textbooks centered on the sexual experiences of males over females. Some text fragments implied that males play an active role during the sexual experience, while females were often described as passive participants of the activity. For example (emphases ours):

“The vagina is also the copulatory organ of the female, as it receives the penis during intercourse…” (Book 3, p. 1105)

“When erect, the stiffness of the organ [penis] allows it to penetrate into the vagina and deposit semen into the female reproductive tract” (Book 4, p. 1287)

“It [vagina] is the receptacle for the penis during sexual intercourse, the outlet for the menstrual flow, and the passageway for childbirth” (Book 5, p. 1132)

“Erection of the penis, which allows it to penetrate the female vagina” (Book 2, p. 1053)

Terms that indicated this included “penetration” by the penis as opposed to how the vagina “receives” the penis. This androcentric pattern was also observed as the only visual of sexual activity was of the human female lying in the supine position while “receiving” the penis (Book 1, p. 1059).
**Heteronormative**

All textual and visual representations of sexual experiences were of a female and male. No representation of intersex or LGBTQ+ individuals or their sexual experiences were found during the analysis. The chapters analyzed were organized in big sections based on a limited, binary view of biological sex, namely male and female only. The theme of heteronormativity was further reinforced by the reproductive-focused framing of materials related to sexual pleasure. Textbooks endorsed heteronormativity when no other form of sexual activity but sexual intercourse between a male and a female were included in content on sexual experiences and pleasure, as shown in the following quotes:

“The sexual union between a female and male is known as copulation, coitus, or sexual intercourse” (Book 3, p. 1105)

“The insertion of the erect penis into the vagina is called heterosexual sexual intercourse or coitus (KŌ-i-tus). A major stimulus for erection is mechanical stimulation of the penis” (Book 5, p. 1119)

“19-4 Learning Objective: Discuss the physiology of sexual intercourse in males and females” (Book 8, p. 642)

The above examples show the pattern of heteronormativity as penetrative sexual intercourse was the only form of sexual activity found in textbooks.

**Discussion**

This discussion is divided into sections on how sexual pleasure content in textbooks is focused on genitals; the limited, oversimplified, and outdated models of sex included in textbooks; the underrepresentation of female and LGBTQ+ sexual function and pleasure; and a reflection on how including sexual pleasure in textbooks may be insufficient. In each of these sections and at the end, we provide recommendations both to instructors engaging with A&P
textbooks and textbook authors on changes that can be made to improve discussions of inclusive sexual pleasure in A&P.

Focus on Genitals

Sexual anatomy was the most covered topic related to sexual pleasure in textbooks, and the primary focus of sexual anatomy was on genitals (described above and in APPENDIX E). Descriptions of sexual pleasure often pointed to the genitals as the source of feeling pleasure. However, this can be misleading as the primary organ that coordinates functions and feelings of sexual pleasure in people is the brain. This is evident through phenomena such as psychogenic erection, where erection occurs due to arousal in the brain and without genital stimulation, reported in individuals following spinal cord injuries (Krassioukov & Elliott, 2017; Sipski et al., 2006). The focus on genitals as the source of sexual pleasure may be due, in part, to our analysis of reproductive system chapters in this study. However, the textbooks included other structures, not in the genital region but still involved in sexual pleasure, such as breasts, nipples, and earlobes. Moreover, the nervous system (i.e., nervous innervation) was included in discussions of sexual pleasure to demonstrate models of human sexual response; there would have been a good opportunity to insert discussion on the brain as a primary component of sexual pleasure. We recommend that textbook authors include the brain as the primary organ of sexual pleasure to holistically describe the function of sexual pleasure in future editions of textbooks.

Minimal, Oversimplified, and Outdated Models of Sex

We found a lack of coverage on sexual pleasure in textbooks, including a very small percentage of reproductive chapters addressing sexual response and thus, sexual pleasure (Table 6), inconsistent inclusion of hormones and innervation concerning sexual pleasure across textbooks (Table 5), absence of non-penetrative pleasurable sexual activity, androcentric
representation of sexual pleasure (Table 6), and only representing heteronormative notions of sexual pleasure. This is consistent with previous findings where a lack of discourse on desire and pleasure is observed in sexual health programming and materials (Allen, 2007; Fine, 2011, 2011; Singh et al., 2021).

When included, most of the textbooks adopted outdated, linear, and uniform descriptions of sexual response models from sex research pioneers, Masters and Johnson, who established the earliest four-stage anatomical and physiological model of human sexual response in the 1960s. According to Masters and Johnson, the human sexual response is divided into four main phases: excitement, plateau, orgasm, and resolution (Masters & Johnson, 1966). Since then, numerous findings have expanded, corrected, and modified Masters and Johnson’s linear model of human sexual response, and proposed new and more complex models that incorporate elements of pre- and post-sexual activity, particularly focused on human females, including psychological, emotional, and cognitive factors (Basson, 2000; Ferenidou et al., 2016; Kaplan, 1979; Levin, 2008; Whipple & Brash-McGreer, 1997). These newer models of human sexual response were not found in any of the textbooks analyzed here.

By presenting outdated, linear, and uniform descriptions of sexual response models, textbooks fail to reflect the sexual experiences of the students learning from these textbooks. For example, cis-women are reported to endorse multiple models of human sexual response for various reasons and situations, affirming the claim that female sexuality is different and more complex than the sexual response of males (Nowosielski et al., 2016; Sand & Fisher, 2007). To our knowledge, there is no published literature on models of sexual response in LGBTQ+ populations. However, as such fields expand to understand more diverse sexual experiences, A&P textbooks should be updated to include this emergent information.
Female and LGBTQ+ Sexual Pleasure

Female and LGBTQ+ sexual pleasure representation is inadequate in these undergraduate human A&P textbooks. A particular example is the absence of nocturnal clitoral tumescence (NCT) in textbooks. NCT is the homolog of male nocturnal emission in females, where the clitoris swells spontaneously during sleep. It has been shown that during REM sleep, females experience periods of sexual excitation that are similar to the cycle of penile erections in the male (Fisher et al., 1983). We acknowledge that research on female sleep-related erection is relatively minimal compared to male nocturnal emission, particularly in the younger female population, and this may contribute to the lack of content regarding NCT or sleep-related erections in the female in undergraduate A&P textbooks. Nevertheless, what is known about females should be included at least to the same degree as that of males.

Additionally, female sexual dysfunction is under-represented compared to males. Female sexual dysfunction more often impedes the female’s ability to experience sexual pleasure rather than affects a female’s reproductive capability. Therefore, textbooks imply to readers that female sexual pleasure comes secondary to their reproductive capability.

Many of the textbooks addressed how pleasure is derived from stimulating the clitoris but have a lack of context on how the clitoris is stimulated. Some textbooks implied that female sexual pleasure is derived from penetrative sexual intercourse, as exhibited from this example: “Tactile stimulation of the female’s genitals that occurs during sexual intercourse, along with psychological stimuli, normally triggers an orgasm” (Book 14, p. 1062). However, it has been shown that females tend not to experience sexual pleasure from penetrative sexual intercourse alone (Armstrong et al., 2012; Brewer & Hendrie, 2011; Wallen & Lloyd, 2011) whereas males do (Haavio-Mannila & Kontula, 1997; Richters et al., 2006). Alternatively, females are equally
as likely as males to experience orgasm when masturbating (i.e., stimulating the clitoris) (Brewer & Hendrie, 2011; Hite, 2004). A wider range of sexual experiences should be presented in human A&P textbooks including those that more accurately stimulate female pleasure.

While we and others have found that females are underrepresented, it is also problematic that the bodies and experiences of LGBTQ+ individuals are completely excluded, as found by us in these A&P textbooks and others in nursing textbooks (Ray King et al., 2021). We agree with Ray King et al. (2021) when they describe how the lack of representation of LGBTQ+ bodies is problematic particularly in A&P courses because it perpetuates negative social norms and diminishes the truths and lived experiences of many students learning from these textbooks. For those students going into healthcare, providing equal care to all patients is a fundamental ethical principle in the field of healthcare (Ray King et al., 2021); hence the knowledge and accurate representation of LGBTQ+ bodies in A&P is important. Therefore, content regarding sexual pleasure seen in these textbooks needs to be updated to be more thorough, current, accurate, and inclusive.

Is Including Sexual Pleasure in Textbooks Enough?

It was shown that sexual pleasure content is found in A&P textbooks, albeit limited and framed in reproductive-focused, androcentric, and heteronormative ways. However, the inclusion of sexual pleasure in textbooks does not dictate the inclusion of sexual pleasure in the undergraduate A&P classroom. More instructors are now opting not to include textbooks as a requirement in the classroom due to textbooks being expensive resources (Bliss et al., 2013). This could potentially minimize students’ access to textbooks where sexual pleasure is discussed. Additionally, instructors may not include content on sexual pleasure in their teaching for various reasons. This is expected when dealing with socio-scientific topics that are more controversial
and overlap with personal identities in society. A paralleled example is addressing religion during lessons on evolution in a biology classroom. Instructors tend to shy away from including religion in discussions on evolution due to factors ranging from “personal beliefs about religion” to a “lack of training” (Barnes & Brownell, 2016). In our future work, we will investigate instructors’ practices and perceptions of teaching A&P related to sexual pleasure in the classroom. We will also explore the factors A&P instructors report affect their decision to include or exclude sexual pleasure both with and without using textbooks as a resource for curriculum design.

**Implications**

Some of the textbooks analyzed stood out more than others in the content on sexual pleasure included in the textbook that was not found in other textbooks. Book 1 was the most thorough as it was the only book that included a visual of sexual intercourse (albeit limited to heterosexual), included pleasure and sensitivity of the penis in a brief excerpt on male circumcision, pointed out the difference between sex and gender, adopted a growth mindset by stating that “certain things are still unknown” about human sexual function, and acknowledged the presence of other models of human sexual response. Additionally, Book 1 was also recommended by the highest number of instructors which may signal that instructors are aware of the thorough information contained in this book (Table 2). Book 3 stood out because it was the only book where content on female anatomy and physiology in the reproductive chapter came before content on male anatomy and physiology. Many books debunked certain societal myths surrounding sex, such as clearly stating that an intact hymen is not an indication of a person’s “virginity”. Nevertheless, all these textbooks would benefit from updated editions that
present more thorough, current, accurate, and inclusive content on sexual pleasure anatomy and physiology.

Here we will offer some recommendations for improving textbooks and the elements instructors should include in their units related to sexual pleasure in A&P. First, textbooks should contain updated content on sexual experiences and pleasure. For example, science textbooks regularly released new editions of textbooks to include new research that emerges. A&P textbooks should update their textbook editions with new research on sex, and therefore sexual pleasure like we have described above. Including sexual pleasure content in textbooks requires an attitude shift among authors where sexual pleasure is seen as an equal priority with reproductive function. We suggest that textbook authors also revisit the labeling of “The Reproductive System” chapters to “The Sexual and Reproductive Systems” as both sexual and reproductive functions are closely interrelated and equally important to include in the curriculum.

We recommend that instructors be intentional about choosing textbooks that contain both more content and updated information on anatomy and physiology related to sexual pleasure, such as Books 1 and 3 in this study. Instructors can also integrate the myriad of peer-reviewed online resources effective at addressing sexual pleasure. A commonly cited example of material related to sexual pleasure is GAB’s training toolkit that provides guidance to sexual and reproductive health practitioners on how to approach issues related to sexual health and sexual rights of their patients, particularly by addressing pleasure (GAB, 2018). To our knowledge, no toolkit exists that can guide instructors on how to incorporate discussions of sexual pleasure in the A&P context. Future work should include exploring how to effectively include content on sexual pleasure and sexual function in the undergraduate A&P curriculum.
Conclusion

Sexual pleasure should be included in the undergraduate A&P curriculum. Sexual pleasure is an important component of sexual experiences and a common physiological process experienced by a large majority of people. There is much room for growth in A&P textbooks and the biology field in general where discourse of sexual pleasure is concerned. While content on sexual pleasure was found in textbooks, the limited and outdated content was framed in reproductive-focused, heteronormative, and androcentric ways. Including updated, accurate, and inclusive content on sexual pleasure in the curriculum will allow biology as a field to move beyond the narrow focus on reproduction and broadly acknowledge the importance of sexual pleasure in a diversity of individuals’ health and wellbeing.
CHAPTER 2
INSTRUCTORS’ PRACTICES AND PERCEPTIONS OF TEACHING SEXUAL PLEASURE IN A&P COURSES

Introduction

Role of Instructors

Instructors play a vital role in helping students learn in a classroom, including biology classrooms such as anatomy and physiology. Some studies have addressed the connection between perception and practices when teaching societal topics that are not typically defined as a part of a core biology curriculum (e.g., ethics (Booth & Garrett, 2004), acceptance of evolution (Barnes & Brownell, 2016)). Many of these studies address a misalignment between the instructor’s perceptions and practices due to a number of factors, such as a lack of time and institutional support due to large amounts of content to cover (Booth and Garrett, 2004) and lack of training, perceived irrelevance of the topic, and differences in belief systems between the instructor and the student (Barnes & Brownell, 2016). To my knowledge, there is currently no known study that has addressed instructor perception and practices as it pertains to sexual pleasure in the A&P context.

Framework: Teacher Centered Systemic Reform (TCSR) Model

In order to understand instructors’ practices and perceptions, I use Woodbury and Gess-Newsome’s Teacher-Centered Systemic Reform Model (Woodbury & Gess-Newsome, 2002) as
a framework for this study. In this model, teaching practices are affected not only by teacher thinking but also by teachers’ personal and external contexts. I have adapted this model to my study context of sexual pleasure in A&P (Figure 3).

Figure 3. The Teacher-Centered Systemic Reform (TCSR) Model (Woodbury & Gess-Newsome, 2002) adapted to my context of teaching and learning sexual pleasure, with presumed examples of factors that could arise during the analysis.

Instructor thinking, which refers to how an instructor perceives a concept, is influenced by two factors: (a) personal contexts and (b) structural and cultural contexts. Personal contexts
refer to any factor attributed to the instructor themselves, including the instructor’s demographic profile and teaching experiences (Woodbury & Gess-Newsome, 2002). Structural and cultural contexts refer to any factor belonging to the external environment in which the instructor resides particularly when teaching, including educational standards, shared sentiments in higher education, and teaching resources. Exploring A&P instructors’ practices and perceptions will provide insight into the complex nature of discussing sexual pleasure in the A&P classroom.

Through this study, I will aim to answer the primary research question (RQ): what are instructors’ practices and perceptions of teaching sexual pleasure in undergraduate A&P courses? Below are secondary research questions that will guide me in answering the primary RQ:

1. Whether and how is sexual pleasure taught in undergraduate A&P courses?
2. How do instructors feel about teaching sexual pleasure in A&P?
3. What are instructors’ perceptions of the benefits and obstacles of teaching and learning about sexual pleasure in the context of A&P?

Methods

Recruitment and Sampling Strategy

We sent out a survey via listserv to three organizations to recruit instructors for interviews, namely Society for the Advancement of Biology Education Research (SABER), American Association for Anatomy (AAA), and Human Anatomy and Physiology Society (HAPS) (APPENDIX C). We recruited two instructors using this method and proceeded to employ snowball sampling to recruit the rest of the instructors due to difficulty in obtaining participants that fit the criteria. These instructors fit the following criteria for the study: (a) have
experience or are currently teaching A&P courses and (b) located in the United States (Table 7). The small sample size is appropriate for a qualitative study (Anfara et al., 2002) and allowed me to conduct thorough interviews and extensive analysis to produce rich descriptions on instructors’ practices and perceptions when teaching sexual pleasure in the context of anatomy and physiology.

**Data Collection**

Six semi-structured interviews were conducted to explore instructors’ self-reported practices and perceptions about teaching sexual pleasure in the context of A&P. The interview questions (APPENDIX F) were designed based on the TCSR model to explore the factors affecting instructors’ thinking when teaching sex and sexual pleasure. Interviews lasted 30-45 minutes. Interviews were conducted virtually through Zoom, which both recorded and transcribed the interviews. Transcripts obtained from Zoom were cross-checked to ensure accuracy of transcription.

**Data Analysis**

Interviews were coded using constant comparison analysis to explore emergent codes in the interview data from the categories established in the TCSR model (Glaser and Strauss, 1967). The data was coded in several iterative cycles (Anfara et al., 2002). In the first iteration of coding, interviews were open-coded to note the topics highlighted by participants that corresponded with factors in the TCSR model. For example, when an instructor spoke about how their identity affected their perception of teaching sexual pleasure, I would code this as a “personal factor” category from the TCSR model.
Table 7. Details of the instructors who participated in this study, including gender, position in their institution, length of A&P course, population of students who take their A&P course, decision to teach sexual function, and decision to teach sexual pleasure in A&P.

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Gender</th>
<th>Position</th>
<th>Highest Degree</th>
<th>Length of Course</th>
<th>Population of Students</th>
<th>Teaches sexual function</th>
<th>Teaches sexual pleasure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mike</td>
<td>Man</td>
<td>Distinguished Lecturer</td>
<td>Ph.D.</td>
<td>Two-semester</td>
<td>pre-health, nursing</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Winona</td>
<td>Woman</td>
<td>Assistant Professor</td>
<td>Ph.D.</td>
<td>Two-semester</td>
<td>half nursing, half biology</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Wendy</td>
<td>Woman</td>
<td>Instructor</td>
<td>M.S.</td>
<td>Two-semester</td>
<td>allied health, 90% nursing</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Wanda</td>
<td>Woman</td>
<td>Postdoctoral Researcher</td>
<td>Ph.D.</td>
<td>Two-semester</td>
<td>1/3 nursing, 1/3 pre-professional, rest are pharmacy and pre-med</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Willow</td>
<td>Woman</td>
<td>Instructor</td>
<td>M.S.</td>
<td>One-semester survey</td>
<td>pre-health, biomedical engineering</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Whitney</td>
<td>Woman</td>
<td>Assistant Professor</td>
<td>Ph.D.</td>
<td>Two-semester</td>
<td>majority pre-nursing, pre-professional</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Then, open codes were sorted into similar categories and compared within categories and between categories during the second iteration of coding. The final iteration of coding was conducted to identify underlying patterns of thought (i.e., themes) that match the TCSR categories in order to answer the research questions in this study (Braun & Clarke, 2006). To ensure trustworthiness of data, I employed thick description of the data and member checking (Lincoln & Guba, 1985), where participants confirm their own experiences in the synthesized themes produced from analysis.

**Ethics**

This study has been approved by the Institutional Review Board (IRB) at Northern Illinois University (NIU) (#HS21-0360) (APPENDICES A and B). Confidentiality was ensured by assigning participants pseudonyms in place of their names, specifically names that start with M for instructors who identify as men (e.g., Mark), and names that start with W for instructors who identify as women (e.g., Winona). De-identified data was stored on OneDrive Sharepoint, a FERPA-secured platform, which is password-protected and can only be accessed by the two researchers involved.

**Positionality Statement**

In terms of my positionality as the researcher, I am currently an M.S. Biology student who specializes in Human Anatomical Sciences. As part of my graduate assistantship, I have the unique opportunity to teach a five-credit, undergraduate anatomy and physiology course as a part-time lab instructor. The participants of this research are six undergraduate A&P instructors who have experience or are current instructors of A&P courses, of which I share some common teaching experiences. For example, we are constantly struggling to accommodate large number of topics in short periods of time because A&P is a general, survey course that combines broad
areas of the two large disciplines of anatomy and physiology. At the same time, I do not share the experience of being a faculty member or instructor who is able to determine the content to teach in the classroom. My role as a lab instructor is not to construct new material, rather it is to teach the material provided to me. A&P instructors may have the upper hand in that they have autonomy to design the course content as they see fit. On top of this, my teaching duties are limited to the lab where most instruction is based solely on identification of anatomical structures and minimal correspondence with teaching physiology. Therefore, the barriers that I face as a part-time A&P lab instructor would look different than the barriers that full-time A&P instructors when teaching content about sexual pleasure in the A&P classroom.

Results

Codebook

The codebook below demonstrates the codes found during emergent thematic analysis of the instructor interviews (see Table 8). Each category yielded their own codes, and examples are included to demonstrate the meaning of the different codes. In the following results, I provide examples of each theme observed, organized into the main TCSR categories.

Teaching Practices

Most of the instructors reported that they do not teach about sexual pleasure (Table 7). Instead, all of them reported teaching about sexual function. All of the instructors reported teaching about sexual function and/or sexual pleasure in units on the reproductive system. Here, I will describe how the instructors teach about sexual function and include how two out of the six instructors teach about sexual pleasure.
Table 8. Codes found within the categories of the TCSR model present in instructor interviews.

<table>
<thead>
<tr>
<th>TCSR Categories</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teaching Practices</strong>—how instructors teach about sexual function and pleasure</td>
<td><strong>Functional</strong>—teaching the pleasure function of anatomical structures and physiological mechanisms of pleasure</td>
</tr>
<tr>
<td></td>
<td><strong>Developmental</strong>—teaching the development of the anatomical structures</td>
</tr>
<tr>
<td><strong>Personal Factors</strong>—factors stemming from the instructor themselves that affect their thinking and practices when teaching sexual pleasure</td>
<td><strong>Teaching Training</strong>—presence or lack of training in teaching sexual pleasure</td>
</tr>
<tr>
<td></td>
<td><strong>Personal Background</strong>—experiences that affect how they teach sexual pleasure</td>
</tr>
<tr>
<td></td>
<td><strong>Instructor identity</strong>—any factor concerning instructor identity that affects how they teach sexual pleasure</td>
</tr>
<tr>
<td></td>
<td><strong>Time</strong>—any indicator that time affects whether they teach sexual pleasure</td>
</tr>
<tr>
<td><strong>Structural and Cultural Factors</strong>—factors stemming from the external environment that affect instructor's thinking and practices when teaching sexual pleasure</td>
<td><strong>Teaching Resources</strong>—any resource used to design content of A&amp;P course</td>
</tr>
<tr>
<td></td>
<td><strong>Cultural Values</strong>—any value or set of value systems that the environment (i.e. community, institution) condones (or do not condone)</td>
</tr>
<tr>
<td><strong>Instructor Thinking</strong>—reasons why instructors choose to teach or not teach sexual pleasure, including rationale behind why they teach sexual pleasure in certain ways</td>
<td><strong>Beneficial for Students</strong>—benefits for students to learn about sexual pleasure, regardless of whether or not instructors teach about the topic</td>
</tr>
<tr>
<td></td>
<td><strong>Fear of Consequences</strong>—negative consequences that come with teaching sexual pleasure</td>
</tr>
<tr>
<td></td>
<td><strong>Complexity of topic</strong>—instructors report that the topic of sexual pleasure is too complex to address</td>
</tr>
<tr>
<td></td>
<td><strong>Appropriate Field</strong>—perceived importance (or importance) to address sexual pleasure in biology</td>
</tr>
</tbody>
</table>
When asked how they teach about sexual function and pleasure, most of the instructors reported teaching from a functional perspective. The instructors teach about the function of anatomical structures involved in sexual function and pleasure and describe the physiological mechanisms that drive some processes of sexual function and pleasure. For example, several instructors described teaching about the anatomical changes and physiological mechanisms involved in male erection:

“And then like sexual function… like why you would get an erection or what happens when you get an erection” (Wendy).
As the only two instructors who teach about sexual pleasure, Winona and Whitney described how they teach about sexual pleasure from a functional perspective too. In the quotes below, Winona describes how she incorporates anatomical and physiological concepts taught in A&P using real-life scenarios that could occur during sexual functioning:

“When we're talking about the anus I make sure to point out the nerves and how well innervated the anus is, why it's sensitive, how it produces mucus. So for some students who wants to engage in any kind of anal play, they're like, that's why that feels good, that makes sense” (Winona).

“When you have a student asked you during class, ‘If the vagina has ridges, why do ribbed condoms hurt, or like, why do you need ribbed condoms? Because they hurt and I'm like ‘more lubrication’. We just in that case we need more lubrication because. remember how, how we lubricate the vagina how its transudation through the tissue’.” (Winona).

Winona and Whitney taught specifically about the workings of female sexual pleasure. Below are quotes that demonstrate how they teach about the mechanism of clitoral erection and the female sexual response:

“So I do talk about how you know the clitoris is going to engorge with blood and have that same effect. I may mention about you know some sensory input and all that, where you know everything is so concentrated in the glans of the clitoris versus in the male” (Whitney).

“Things you might note are sweating here, and you know flush and blood to this body part and this and that and it may last for three, five, ten seconds and if you're a female you are not done, you may have more because we go through the refractory period” (Winona).

**Developmental**

Two of the instructors described how they teach about sexual function from a developmental perspective. These instructors report teaching about the male and female anatomical structures involved in sexual function and how they develop from the same tissue of
origin. Specifically, instructors teach about how the penis and the clitoris are anatomical homologues of each other:

“And so, one of the things that I would ask students to do, and basically because of the evolutionary background is to say, ‘I want to understand where these structures came from, how they developed. So, you know how they start out in tissues, what signals there are that cause differentiation’” (Mike).

“And then mostly because of my background from having embryology I'll usually make a point of saying like this structure is homologous to the male penis. Like every part here that you're seeing on the male reproductive model exists in a female. It's just internal. And so I'll do some structural comparisons” (Willow).

These quotes demonstrate instructors’ teaching practices on sexual function from a developmental perspective.

**Structural and Cultural Factors**

The structural and cultural factors that instructors reporting on for how and why they teach sexual pleasure and function included time, teaching resources, and cultural values.

**Time**

Most of the instructors reported that time was a big factor in determining their teaching practices on sexual function. The instructors described the difficulty of teaching “additional” topics due to a lack of time and saturated number of topics in A&P courses as they exist presently. Mike explains the complexity of determining the topics to teach in A&P within a limited time frame:

“We’re always arguing about you know well we've only got 15 weeks to do this, what goes in and what doesn't you know. Whether how much time do we spend on this and that and the other thing… And so I think that that would not be realistic to have more than one session, one lecture session in you know, in a semester on that just in terms of the amount of time.” (Mike).

Though Willow reported that she would be interested in teaching about sexual pleasure in A&P, she also brought up the issue of time:
“I never feel like there's time. Like even when I want to review just regular content that has nothing to do with sexual pleasure of the reproductive system, they're not ready to do the review, because they haven't really gotten their hands on it, yet.. And then it becomes this balance point of like, how do we help students get there faster” (Willow).

Her A&P course is the only A&P course out of the six instructors that is conducted within the span of a single semester.

These quotes demonstrate that a lack of time hinders the instructors from teaching about sexual pleasure in A&P.

**Teaching Resources**

When talking about their teaching practices on sexual function and pleasure, instructors described the teaching resources used to design how they teach about these topics.

Textbooks were the most cited teaching resource that the instructors used in their A&P courses. Most of the instructors reported using the textbook to design the content they teach in their A&P course, with some instructors teaching chapters in the order parallel with textbook chapters. For example, Wendy reported not teaching about sexual pleasure because she did not find information about sexual pleasure in textbooks, as evident in the quote below:

“I didn't even like really think about like, I mean I designed everything like straight out of the textbook. It’s not in there, but I didn't find it strange, until now, and now I think that it is strange that it’s not in there” (Wendy).

Mike and Winona indicated their dislike of textbooks’ approach to sexual pleasure that is more reproductive-focused. However, their dislike of the content in textbooks yielded opposite results in their teaching practices. Mike indicated that he does not teach about sexual pleasure, while Winona is one of two instructors in this study that report teaching about sexual pleasure. The reproductive-focused content in textbooks motivated her to teach about sexual pleasure openly in A&P:
“And then we keep going so, I hate how textbooks they always go ‘procreation’, we are going to have a sexual event and then will immediately go into pregnancy and, like uh those are two separate things… Students deserve to know. It's part of their body, it is part of, I mean the fact that we have a sexual pleasure response that is distinct from procreation.” (Winona).

Several instructors (Mike, Winona, Willow) indicated that the learning outcomes for the Human Anatomy and Physiology Society (HAPS) typically serve as a general guideline for determining the content taught in their A&P courses. Both Mike and Willow do not teach about sexual pleasure in A&P. Mike indicated that he does not teach about sexual pleasure due to the absence of sexual pleasure as a topic in the learning outcomes of both HAPS and his A&P course, as demonstrated in the quote below:

“I think partly it is that it's not built into the objectives of the course and in any significant way. I mean it's there, these structures that function in this way, they have this kind of you know, neurologic feedback and that sort of thing. Other than that, I don't see it built into the learning objectives in a significant way” (Mike).

**Cultural Values**

Several of the instructors described how the beliefs of both the community and the institution they teach at may affect their teaching practices on sexual pleasure in A&P. Below is a quote that demonstrates how Winona strives to address sexual pleasure in an institution that believes sexual pleasure is a taboo topic:

“In a school that again assumes everyone's gonna be abstinent because it's a Catholic school, not all Catholic students are… So I feel like they need someone who can just say “let's talk about the clitoris” (Winona).

Both Willow and Wendy point to conservative community values surrounding sexual pleasure as a potential barrier in teaching about sexual pleasure in A&P, but did not make direct connections between conservative community values and their own teaching practices on sexual pleasure:

“Just because there's this inherent puritanical… feeling in the United States that [sexual pleasure] isn't something that you talk about if you add religion and the taboos about
discussions like that. I think, like, I know, several instructors that would just not. I feel comfortable having these conversations with students, which I think is a shame, but it's definitely a reality in the world” (Willow).

“And then also I think another obstacle would be you know in this area, you know talking about sex and sexual pleasure is more acceptable. But if you're you know in a lot of like southern states… actual institutions like still you know… have teachers, that will you know, say, like you, shouldn't have sex until you're married and like that's their focus, so I don't think that, in an area like that that sex would ever be talked about as pleasure like it's talked about as a form of procreation” (Wendy).

The quotes above demonstrate that instructors feel that cultural values could hinder discussions of sexual pleasure in others’ classrooms even though they include it in their courses.

**Personal Factors**

The instructors discussed personal factors that may be influencing their own and others’ teaching practices, including content knowledge and teaching training, personal background, and instructor identity. Instructors did not seem to connect their personal factors with their pedagogical choices when teaching about sexual function and/or pleasure. However, it seems that instructors’ practices were implicitly influenced by personal factors. As a result, personal factors had a variety of effects on instructors teaching practices.

**Content Knowledge and Teaching Training**

No instructors reported being trained to teach sexual pleasure in an A&P context. Some of the instructors reported that they did not know how to meaningfully engage with the topic of sexual pleasure as they lack the training in doing so in the A&P classroom. For example, several instructors discussed how they had not encountered this concept being taught in courses during their time as students, as demonstrated in the quotes below:

“Even, thinking back to taking gross anatomy at [Institution] I don't remember discussing the female anatomy stuff I mean maybe we did but you're just so concerned about getting the tests done and making sure you have this dissection done and you're learning this and that” (Whitney).
“And maybe because, like I didn’t have teachers, you know that talked about that, like maybe that's why like there's a disconnect there” (Wendy).

As a result, instructors had no examples from their previous instructors on teaching practices when engaging in the topic of sexual pleasure in the A&P classroom. However, the lack of teaching training yielded different effects in teaching practices among instructors, where Whitney teaches sexual pleasure, and Wendy does not.

**Personal Experiences**

The instructors reported how their personal experiences could influence how they teach the topics of sexual function and pleasure. These personal experiences included their upbringing, personal sexual experiences, and encounters with discussions of sexual pleasure outside the classroom setting. For example, Winona and Whitney described how their religious upbringing, where conversations surrounding sex were not encouraged, motivated them to be completely open in being a reliable resource for students’ inquiries and curiosity surrounding sexual function and pleasure, as demonstrated in the quotes below:

“I think [my religious upbringing] have helped me go ‘what was missing what would I have liked more’, because I also came from a Catholic family... And so I mean there were so few talks about sex... Just making sure that my students get a little bit more than I have but I'd like to think that the science background, the questioning and the relatively benign exposure has set me up to say, you know, resources are a good place to start and feeling like you can ask questions is really key” (Winona).

“I grew up in this Catholic background so I mean when we learned about sex at fifth grade it was like boys have a penis, girls have a vagina yeah, you know you're saving for marriage and that's about it, you know didn't go into much detail.... I want to teach more of that pleasure side of things” (Whitney).

For Willow, she reported that her religious upbringing could be a reason that she finds it difficult to discuss sexual pleasure in the A&P context. Below is a quote that demonstrates how she tries to push past her own biases and discomfort to be open to discuss sexual function and pleasure:
“I would like to think that I could teach that without embarrassment, but I also am a product of my own upbringing from a very religious family. That this is not a conversation that you should be having and I fight against that a lot. And it's a conscious thought a lot, like you need to move past these taboos, because students are needing to talk about things like, important topics” (Willow).

The instructors reported how personal experiences around the topic of sexual function and pleasure may influence their perception of sexual function and pleasure, but it was unclear how it influenced their teaching practices. For example, Wendy describes in the quote below the contrasting experiences of discussing sexual pleasure casually with friends compared to the discomfort of hearing it being discussed in the classroom by an instructor:

“So I don't think that [my personal experiences] influence like my ability to talk about sex with anyone other than students. Is like it’s totally not awkward… we’ve always just had open conversations and I worked in you know bars and restaurants, which sex gets talked about a lot so you know it’s always been normal to me… yeah even when I took like A&P, I still remember the teacher, and he used the word orgasm when talking about a male, but even then, I was like “Oh why does he keep saying that?”. Because I, you know as a second year in a row I had him and he was like you know our dad, the class dad I was like ‘make him stop saying that’, you know” (Wendy).

**Instructor Identity**

The instructors described how aspects of their personal identity could affect their teaching practices on sexual function and pleasure. Several of the instructors described how their own gender and sexual orientation may influence the biological sex they are inclined to teach about more when it comes to teaching about sexual function and pleasure. For example, some of the instructors described how their identities as heterosexual women may result in their teaching practices leaning more towards female sexual function and heterosexual relationships:

“I’m sure that I have a bias towards heterosexual sexual relationships and that I would probably have a hard time developing a curriculum that can accommodate all the different kinds of relationships or identities or backgrounds or, you know desires, yeah I think that would be one of my concerns based on my own experience. Looking at the
amount of time spent on reproductive topics it's heavily weighted towards female cycles… things that are more pertinent to a female reproductive cycle and very honestly, very little time is spent on male sexual organs, other than you know talking about the life cycle of sperm compared to women. And talking a little bit right about like testes, but I think I definitely have a bias towards female content” (Wanda).

“I mean I'm sure there is a certain amount of bias that I'm a woman, so I want to teach that female side of things, because I know, through my experience I wasn't taught it… I'd probably put a bit more emphasis than others on the female side of things, and I could do better with males, I guess, but I feel I know [males] have a lot more like I said visual ways of understanding themselves” (Whitney).

These quotes demonstrate how instructor identity could implicitly be influencing instructors’ teaching practices on sexual pleasure.

**Instructor Thinking**

This section describes instructors’ perceptions of teaching sexual pleasure in A&P and their explicit reasons for choosing to teach or not teach sexual pleasure in their A&P courses.

**Beneficial to Students**

Regardless of whether instructors teach sexual pleasure, all instructors reported that including sexual pleasure in the curriculum is beneficial to students for various reasons. For instructors that do teach sexual pleasure (Winona and Whitney), they described the importance of empowering students with the knowledge of the sexual functions of their own bodies. A motivation that these instructors described is debunking myths behind the taboo topic of sexual pleasure in society. The quotes below demonstrate this code:

“I had a student got so excited and she's like, ‘my boyfriend's going to know this thing’ you know. Passing along the knowledge, you know you get excited about it. I think it's because it's so taboo and there's so much misinformation, it would be fascinating I would love to teach more about it” (Whitney).

“I take trying to give just bias-free, assumption-free knowledge to students because that's what they need... Because you know it's the lack of knowledge is definitely going to keep people from exploring. Right like no, just tell them how these things work and then they can make the decisions” (Winona).
Willow and Wendy also reported how teaching about sexual pleasure benefits students’ future careers as health professionals, as many students who take A&P are pre-health students. Below are quotes that demonstrate this code:

“It's beneficial for future clinicians because you know, like females that can't orgasm, they go to a medical doctor. Or if you are in excruciating pain, when you have sex, for some reason, like you go to a medical doctor like so like it would be beneficial, I think” (Wendy).

“We teach a lot of students that are going into various forms of healthcare. And I think this is something that healthcare practitioners need to have a background in because they have to be comfortable enough in their knowledge to at least know where to go for answers. And to be able to help the patients and the people that they're interacting with be comfortable with something that is, like I said it's kind of a topic that people don't seem to want to talk about” (Willow).

Other reasons instructors believe sexual pleasure would be beneficial to teach in the context of A&P include student interest in the topic (Mike) and sexual pleasure as a case study to integrate previously taught A&P concepts (Wanda).

**Fear of Negative Consequences**

Several of the instructors reported the fear of negative consequences as an obstacle in teaching sexual pleasure in A&P. The consequences stemmed from different sources including student discomfort. Wanda discussed the awareness that sexual pleasure is a sensitive topic and could yield varying reactions from student, primarily discomfort. This potential discomfort from students is a reason why she does not teach the topic of sexual pleasure, as demonstrated in the quote below:

“The general concern of talking about sexual pleasure in a traditional STEM classroom. I think that, much like we talked, when I’ve taught about COVID in the past right, there was a certain level of discomfort with some students. I would imagine that same thing would happen if sexual pleasure was included in the curriculum” (Wanda).
Mike discussed a similar fear of student discomfort, particularly when the A&P class has a larger number of students, as it is more difficult to gauge students’ reaction to the topic of sexual pleasure:

“I think it's easier when the classes are small like in a lab section or something like that, because you actually can connect with folks. In a lecture it's sort of, well, here I am you know it's kind of like the old sex ed classes in junior high, you know. You're just kind of putting it out there, there's no way of knowing how students are responding to it, who’s feeling uncomfortable, who needs a little bit more attention, interaction and you know to be able to articulate issues that they have or questions that they have” (Mike).

Two instructors (Willow and Wendy) also discussed the potential repercussions of discussing sexual pleasure including getting reported by both students and their parents, who may perceive sexual pleasure to be an inappropriate topic to teach in the classroom. While she herself had not received negative reports as a result of her own teaching practices, Instructor Wendy shared her colleagues’ experiences getting reported when discussing topics in their courses that were not universally accepted, like evolution, as demonstrated in the quote below:

“If there's somebody who you know feels like they should be teaching that or like learned that way, like, I think that they might be concerned about getting in some form of trouble... some student is going to go home and say something, and you know write a letter to the university that like they're offended that you're teaching this… I know, my friend actually she taught like General biology and she's like ‘every year I get at least two of these’. And she read me this email, and it is a student that's like I can't do this assignment because this is an assignment about evolution” (Wendy).

The quotes above demonstrate instructors’ perception of having fear of negative consequences when teaching about sexual pleasure in the A&P classroom.

**Appropriate Field**

Several of the instructors (Mike, Wanda, Whitney) described how A&P may not be the most appropriate field to discuss sexual pleasure in detail. The reasons they reported included how A&P courses serve primarily as a foundation of knowledge on the human body and not
detailed workings of human functions, such as sexual pleasure, and a perceived lack of need to address sexual pleasure in A&P. For example, Whitney used the term “staying in your lane” when describing why she teaches sexual pleasure from a primarily anatomical standpoint. Both Mike and Wanda described how sexual pleasure would be more beneficial to be taught in psychology-based courses or specialized courses in human sexuality:

“We have a neuroscience consortium and [sexual pleasure]’s something that can come up there. I’m not exactly sure if it's there or not. So yeah we kind of do that and pass off the students to those more specialized courses, with the understanding that we’ve given them the foundation” (Mike).

“We have a course, so much like a lot of the other things that I'm interested in, we have a course in the psychology department titled “Human Sexuality”. I think there's also kind of been this like there's not really a need, I guess. And because another department offers this course that is specifically I guess targeting more of that content” (Wanda).

These quotes demonstrate how several of the instructors perceive other fields, not A&P, as more appropriate avenues to discuss sexual pleasure.

**Complexity of Topic**

Two of the instructors (Mike and Wanda) discussed how the complexity of sexual pleasure could be a potential obstacle to meaningfully engage with the topic in A&P. This code was typically coupled with the lack of time that instructors perceive they have to discuss topics of their interest in A&P:

“And I think [teaching sexual pleasure] would be really hard to do it in a manner that is considerate and mindful of all of the nuances of gender identity and sex identities, sexual pleasure in you know, I would imagine I would often fall into a habit of thinking of like sex as a hetero- relationship, and so I think that would be my biggest concern” (Wanda).

“You know the whole concept of the whole area of sexual pleasure is complicated. It's difficult to do a good job with anything really complex in what would essentially be probably a one-hour lecture or you know, an hour and a half lecture in a whole semester” (Mike).
These quotes demonstrate how instructors perceive sexual pleasure to be a complex topic, thus hindering instructors from teaching about sexual pleasure in A&P.

**Discussion**

**Discussing Sexual Pleasure in A&P**

The instructors discussed the difficulties of teaching sexual pleasure in A&P, including how it could stem from the lacking content knowledge and teaching training, as well as the perceptions that sexual pleasure should be discussed in a different field or that sexual pleasure is too complex. In all of these cases, the difficulty of discussing sexual pleasure could arise from the lack of tools instructors have in managing this complex topic in the A&P context. It is evident that some of the instructors view sexual pleasure as a more psychological topic, and thus, unsuitable to discuss in a more biological-based course like A&P. However, instructors of psychology courses such as Human Sexuality likely engage with the topic of sexual pleasure from a heavily psychological perspective and may not have the A&P expertise to discuss sexual pleasure in its entirety. Additionally, psychology-based courses, such as Human Sexuality, likely serve different populations of students compared to A&P. To our knowledge, no A&P-specific teaching module exists that address sexual function and pleasure. Future work could involve designing a peer-reviewed module to help instructors engage with sexual pleasure content in the context of A&P.

**Integrating Sexual Pleasure in Teaching Resources**

The instructors reported that sexual pleasure is not taught in A&P due to a lack of teaching resources that engage with the topic. Commonly cited teaching resources included textbooks and the HAPS learning outcomes to design the content of their A&P courses. My
previous chapter on sexual pleasure content in textbooks reveal that although content on sexual pleasure in A&P textbooks is present, content is minimal and framed in androcentric, heteronormative, and reproductive-focused ways (Anak Ganeng et al., in review). The HAPS learning outcomes document contains only one learning outcome associated with sexual function and pleasure in Module R: Reproductive System under bullet point 8 that states that students should learn to “compare and contrast female and male physiological sexual responses” (HAPS, 2019). No learning outcome was found within the HAPS document that addressed sexual pleasure, specifically. A lack of representation of sexual function and pleasure in teaching resources like textbooks and learning outcomes from professional organizations could signal to instructors that these topics are not important to teach in A&P. Including sexual pleasure as a learning objective could require a shift in the field of A&P that sexual function and pleasure are common and important physiological functions that students deserve to learn on an equal level of engagement with reproductive function, as championed by the WHO (WHO, 2017).

**Future Directions**

Due to the nature of rich description in qualitative study, I acknowledge that the sample size in this study is small and thus, cannot be generalized to the population of A&P instructors in the United States. Future work should include conducting large-scale, quantitative approaches on complimentary research questions in order to make generalizable conclusions and enable actionable changes when incorporating content on sexual function and pleasure in A&P.
CHAPTER 3
OVERARCHING CONCLUSIONS AND FUTURE DIRECTIONS

It is evident through this work that sexual pleasure currently takes up little space in the A&P curriculum. The qualitative textbook analysis demonstrates that although content on sexual pleasure is found in undergraduate A&P textbooks, content on sexual pleasure is minimal, outdated, and exclusive. Specifically, sexual pleasure content in textbooks is framed in androcentric, heteronormative, and reproductive-focused ways. However, the presence of sexual pleasure content in A&P textbooks does not solely dictate the representation of sexual pleasure during A&P instruction.

In the second chapter, only a minority of instructors in the sample report explicitly teaching sexual pleasure in A&P. When taught, the instructors teach about sexual function and pleasure in brief caveats from functional and developmental perspectives. Instructor interviews revealed a myriad of obstacles in teaching sexual pleasure despite the instructors reporting many benefits that students could gain if sexual pleasure is taught in A&P. These obstacles stemmed from both personal, as well as cultural and structural factors. It is unclear how personal factors influenced the instructors teaching practices in this study, though the instructors acknowledged how certain personal factors could pose a potential challenge in teaching practices on sexual pleasure in general. Structural and cultural factors had clearer influences on the instructors’ perceptions of sexual pleasure and teaching practices.

To obtain a larger picture of representations and perceptions of sexual pleasure in A&P, future work should look at students’ knowledge of sexual pleasure both before and after taking
an A&P course. This future work could inform what students report they are learning about sexual pleasure in A&P. It would also be beneficial to explore students’ perceptions of learning sexual pleasure content in A&P, as students are motivated to learn better when they find value in the content they learn (Wigfield & Eccles, 2000). Including current, accurate, and inclusive content on sexual pleasure in A&P is important for a myriad of reasons, including providing a solid foundation for future health care professionals to be comfortable to engage in difficult topics, such as sexual pleasure, with their future patients, empowering students with the knowledge to pursue positive sexual experiences and take ownership of their sexual health, and to signal the equal level of importance that sexual function and pleasure have with reproductive function in human beings.
REFERENCES


https://doi.org/10.1007/s00520-008-0563-5

https://doi.org/10.1310/sci2301-1

https://doi.org/10.1080/00224498909551506


https://doi.org/10.1037/h0054346


https://doi.org/10.5582/bst.2011.v5.2.61


https://doi.org/10.1097/01.ju.0000173639.38898.cd

https://doi.org/10.1016/j.socscimed.2017.03.032


APPENDIX A

IRB APPROVAL EMAIL 2021-2022
From: Patricia S Wallace

Sent: Wednesday, April 7, 2021 9:54 AM

To: Brenda Anak Ganeng

Cc: Heather Bergan-Roller; Gradsch; Jon Miller

Subject: IRB Approval Letter

---

NORTHERN ILLINOIS UNIVERSITY
Office of Research Compliance, Integrity & Safety

Approval Notice

INITIAL REVIEW

07-Apr-2021

TO: Brenda Anak Ganeng
(01902625)Biological Sciences

RE: PROTOCOL # HS21-0360 "THE REPRESENTATION AND PERCEPTION OF ANATOMY AND PHYSIOLOGY RELATED TO SEXUAL HEALTH IN UNDERGRADUATE ANATOMY AND PHYSIOLOGY (A&P) COURSES"

In a preliminary review, the Initial Submission of the above named research protocol was determined to meet the definition of human subjects research according to the federal
regulations. The submission was then reviewed and approved by the Institutional Review Board through the expedited review process under Member Review procedures on 07-Apr-2021.
Please note the following information about your approved research protocol:

**Protocol Approval period:** 07-Apr-2021 - 06-Apr-2022

It is important for you to note that as an investigator conducting research that involves human participants, you are responsible for ensuring that this project has current IRB approval at all times. If your project will continue beyond the above date, or if you intend to make modifications to the study, you will need additional approval and should contact the Office of Research Compliance, Integrity, and Safety for assistance. In addition, you are required to promptly report to the IRB any injuries or other unanticipated problems or risks to subjects or others.

Please note that the IRB has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

**Informed Consent:**

Unless you have been approved for a waiver of the written signature of informed consent, this notice includes a date-stamped copy of the approved consent form for your use. NIU policy requires that informed consent documents given to subjects participating in non-exempt research bear the approval stamp of the NIU IRB. This stamped document is the only consent form that may be photocopied for distribution to study participants.

If consent for the study is being given by proxy (guardian, etc.), it is your responsibility to document the authority of that person to consent for the subject. Also, the committee recommends that you include an acknowledgment by the subject, or the subject's representative, that he or she has received a
copy of the consent form.

You are responsible for retaining the signed consent forms obtained from your subjects for a minimum of three years after the study is concluded.

Continuing Review:

Continuing review of the project, conducted at least annually, will be necessary until data collection is complete and you no longer retain any identifiers that could link the subjects to the data collected. Please remember to use your protocol number (HS21-0360) on any documents or correspondence with the IRB concerning your research protocol.

Closing the Study:

Please note that a final report submission should be created in the record in lieu of an annual continuation form if data collection has ended and the data are free of identifiers. The final report is a separate submission form in the list of options in the InfoEd record, and it may be submitted prior to the annual review deadline.

With all of this said, the IRB extends best wishes for success in your research endeavors! Please see the RIPS website for guidance on the impact of COVID-19 on research (including face-to-face data collection) https://www.niu.edu/divresearch/covid/index.shtml

Patty Wallace
Compliance Coordinator
Office of Research Compliance & Integrity Northern Illinois University
APPENDIX B

IRB APPROVAL LETTER – CONTINUE, EXPEDITED 2022-202
Approval

Notice

Continuing Review

08-Mar-2022

Brenda Anak Ganeng
Biological Sciences


Dear Brenda Anak Ganeng,

Your Continuing Review submission was reviewed and approved under Administrative Review procedures by the Institutional Review Board on 08-Mar-2022. Please note the following information about your approved research protocol:
Protocol Approval period: 07-Apr-2022 - 06-Apr-2023

Please remember to use your protocol number (HS21-0360) on any documents or correspondence with the IRB concerning your research protocol.

If you are still recruiting subjects and have not waived the written signature of consent, I have attached a date-stamped copy of the approved consent form for your use. NIU policy requires that informed consent documents given to subjects participating in non-exempt research bear the approval stamp of the NIU IRB. This stamped document is the only consent form that may be photocopied for distribution to study participants. If your project will continue beyond that date, or if you intend to make modifications to the study, you will need additional approval and should contact the Office of Research Compliance, Integrity, and Safety for assistance. Continuing review of the project, conducted at least annually, will be necessary until you no longer retain any identifiers that could link the subjects to the data collected.

It is important for you to note that as a research investigator involved with human subjects, you are responsible for ensuring that this project has current IRB approval at all times, and for retaining the signed consent forms obtained from your subjects in a secure place for a minimum of three years after the study is concluded. If consent to participate is being given by proxy (guardian, etc.), it is your responsibility to document the authority of that person to consent for the subject. In addition, you are required to promptly report to the IRB any injuries or other unanticipated problems involving risks to subjects and others. Please accept my best wishes for success in your research endeavors. If you have any questions or need further help, please contact the Office of Research Compliance, Integrity, and Safety at (815) 753-8588.

Please see the RIPS website for guidance on the impact of COVID-19 on research (including face-to-face data collection) https://www.niu.edu/divresearch/covid/index.shtml
APPENDIX C

TEXTBOOK AND INSTRUCTOR RECRUITMENT SURVEY
Textbook and Instructor Survey

Q5 Consent Information

Study Title: Representation and Perception of Anatomy and Physiology Related to Sexual Health in Undergraduate Anatomy and Physiology (A&P) Courses

Investigators:
Brenda Kucha Anak Ganeng, Department of Biological Sciences (phone: (717) 802-5187)
Heather Bergan-Roller, PhD, Department of Biological Sciences (phone: (815) 753-7421)

Key Information: This is a voluntary research study on “The Representation and Perception of Anatomy and Physiology Related to Sexual Health in Undergraduate Anatomy and Physiology (A&P) Courses”. The purpose of the study is to understand how sexual anatomy and physiology is represented in materials used and how sexual anatomy and physiology is perceived to be taught and learned by instructors and students in undergraduate anatomy and physiology (A&P) courses. The benefits include understanding the current state of anatomy and physiology within the biological field contained within the textbooks we use as resources for learning, as well as the specific topics that both instructors and students feel require more engagement and coverage. This will allow for more direction in the design of compatible curricula that will maximize the applicability of
knowledge that students receive as well as to empower.

**Description of the Study**  The purpose of the study is to understand how sexual anatomy and physiology is represented in materials used and perceived to be taught and learned by instructors and students in undergraduate anatomy and physiology (A&P) courses. If you agree to be in this study, you will be asked to take a survey to answer questions about materials used/assigned in the classes you teach and demographic questions.

**Risks and Benefits**  There are no reasonably foreseeable risks.  This study will allow us to understand the current state of anatomy and physiology within the biological field as well as the specific topics that instructors and students feel require more engagement and coverage as it pertains to content of sexual health. This will allow for more direction in the design of compatible curricula that will maximize the applicability of knowledge that students receive as well as to empower.  

**Confidentiality**  The records of this study will be kept strictly confidential. Research records will be kept in a locked file, and all electronic information will be coded and secured using a password protected file in a locked office. Study records will be shredded (paper) or deleted (digital) after the study is completed. We will not include any information in any report we may publish that would make it possible to identify you.

**Your Rights**  The decision to participate in this study is entirely up to you. You may refuse to take part in the study at any time. Your decision will not result in any loss of benefits to which you are otherwise entitled. You have the right to skip any question or research activity, as well as to withdraw completely from participation at any point during the process.  You have the right to ask questions about this research study and to have those questions answered before, during, or after the research. If you have any further questions about the study, at any time feel free to contact the researcher, Brenda Kucha Anak Ganeng at banakganeng1@niu.edu or by
telephone at (717) 802-5187, or Dr. Heather Bergan-Roller at hroller@niu.edu or by telephone at (815) 753-7421. If you have any questions about your rights as a research participant that have not been answered by the investigators or if you have any problems or concerns that occur as a result of your participation, you may contact the Office of Research Compliance, Integrity, and Safety at (815)753-8588.

**Future Use of the Research Data**  Your information collected as a part of this research will not be used or distributed for future research, even if all identifiers are removed.   Your consent below indicates that you have decided to volunteer as a research participant for this study, and that you have read and understood the information provided above.

By clicking on the OK button below, I confirm that I have read the information about the study and have been informed of its general purpose and I agree to participate in this study.

OK, I consent to participate in this study. (1)

Q6 Enter today's date:

________________________________________________________________

End of Block: Consent Form

Start of Block: Main Survey Questions
Q7 Have you taught undergraduate human anatomy and physiology (A&P) at a higher education institution?
Yes (1)
No (2)

Q8 What undergraduate human anatomy and physiology (A&P) courses have you taught? *Select all that apply.*
- Human anatomy alone (not with physiology) (1)
- Human physiology alone (not with anatomy) (2)
- Combined human anatomy and physiology (3)

Q9 Have you assigned, required, recommended a textbook(s) for the A&P course?
Yes (1)
No (2)
Q14 Please provide the **title, author and year of publication or edition** for each textbook that you have used for A&P.

________________________________________________________________

________________________________________________________________

________________________________________________________________

________________________________________________________________

Q16 What medium of textbook have you assigned, required, recommended for A&P? *Select all that apply.*

Printed hard copy (1)

Digital electronic copy (2)
Q17 What learning resources do you provide to your students (e.g., resources you created, resources from other instructors, published resources, etc.)?

________________________________________________________________

________________________________________________________________

________________________________________________________________

________________________________________________________________

________________________________________________________________

End of Block: Main Survey Questions

Start of Block: Demographic Questions

Q18 State your age in years.
Q19 How would you describe your race or ethnicity? Select all that apply.

American Indian or Alaskan Native (1)
Asian (2)
Black or African American (3)
Hispanic or Latino (4)
Native Hawaiian or Other Pacific Islander (5)
White (6)
Not listed above. Please specify: (7) ________________________________
I prefer not to respond (8)

Q20 Gender: how do you identify? Select all that apply.

Man (1)
Woman (2)
Non-binary (3)
Transgender (4)
Prefer to self-describe. Please specify: (5)
______________________________________________
I prefer not to respond (6)
Q21 What is the highest degree you have completed? *If currently enrolled, highest degree previously received.*

Bachelor’s degree (1)
Master’s degree (2)
Professional degree (3)
Doctorate degree (4)

Q22 What type of institution do you teach at?

Minority-serving institution (1)
R1-Doctoral granting university-very high research activity (2)
R2-Doctoral granting university-high research activity (3)
M1-Master's college and university-large programs (4)
MS2/3-Master’s college and university-medium or small programs (5)
Community college (6)
Baccalaureate institution (7)

Not listed above. Please specify: (8) ____________________________________________
Q23 What is the best description of your position at your academic institution (employment hours)?

Part-time (1)

Full-time (2)

Q24 What is the best description of your position at your academic institution (track)?

Tenure track or tenured (1)

Non-tenure track (2)

Q25 What is the best description of your position at your academic institution (rank)?

Assistant Professor (1)

Associate Professor (2)

Full Professor (3)

Teaching faculty (4)

Research faculty (5)

Clinical faculty (6)

Graduate student (7)
Q28 What proportion of your time do you spend in each of the categories below? These should add up to 100%.

Research : _______ (1)
Teaching : _______ (2)
Service : _______ (3)

Total : _______ 

Q29 How many years have you been an instructor of record at a higher education institution?

________________________________________________________________

End of Block: Demographic Questions

Start of Block: Follow-up contact info

Q30 Later on in this project, we will be conducting interviews about instructors’ experiences teaching A&P specifically regarding human sexual anatomy and physiology. If you would be
willing to potentially be contacted, please provide your email.

If not, you may end this survey.

________________________________________________________________
End of Block: Follow-up contact info
APPENDIX D

TEXTBOOK ANALYSIS DATA COLLECTION TABLES
### A. Textual Representations

<table>
<thead>
<tr>
<th>Book</th>
<th>Section</th>
<th>Page</th>
<th>Type of text</th>
<th>Fragment of Text</th>
<th>Degree of depth</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Penis</td>
<td>836</td>
<td>Content</td>
<td>It is also specialized to enlarge and stiffen, which enables it to enter the vagina during sexual intercourse</td>
<td>Operative</td>
<td>sexual activity, sexual anatomy, Human sexual response</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Content</td>
<td>The skin of the glans is very thin, hairless and contains sensory receptors for sexual stimulation</td>
<td>Operative</td>
<td>Sexual anatomy</td>
</tr>
<tr>
<td>14</td>
<td>Vagina</td>
<td>1062</td>
<td>Content</td>
<td>Tactile stimulation of the female's genitals that occurs during sexual intercourse, along with psychological stimuli, normally triggers and orgasm</td>
<td>Operative</td>
<td>sexual activity</td>
</tr>
</tbody>
</table>

### B. Visual Representations

<table>
<thead>
<tr>
<th>Book</th>
<th>Section</th>
<th>Sub-section</th>
<th>Page</th>
<th>Format</th>
<th>Description</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>28.4 Female Sexual Response</td>
<td>28.4b Orgasm and Resolution</td>
<td>1059</td>
<td>Illustration</td>
<td>Flowchart of the stages of the female sexual response and anatomical changes associated with each phase, visual of penis inside vagina</td>
<td>sexual anatomy, human sexual response</td>
</tr>
<tr>
<td>10</td>
<td>Supporting Structures</td>
<td>Penis</td>
<td>1047</td>
<td>Photograph</td>
<td>Sagittal section of the human male penis showing vasculature and erectile tissues of penis</td>
<td>sexual anatomy</td>
</tr>
</tbody>
</table>
APPENDIX E

NUMBER OF VISUAL REPRESENTATIONS OF SEXUAL PLEASURE IN TEXTBOOKS
<table>
<thead>
<tr>
<th>Book</th>
<th>Sexual Anatomy</th>
<th>Sexual Physiology</th>
<th>Models of Human Sexual Response</th>
<th>Sexual Activity</th>
<th>Sexual Dysfunction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>male</td>
<td>female</td>
<td>male</td>
<td>female</td>
<td>male</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>2</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>
APPENDIX F

INSTRUCTOR INTERVIEW PROTOCOL AND QUESTIONS
Instructor Interview Protocol

Project: “Instructors’ Practices and Perceptions of Teaching Sexual Pleasure in Undergraduate A&P Courses”

For the Interviewer

Research Question

The goal of this research project is to explore how A&P textbooks and instructors represent sexual anatomy and physiology and how A&P instructors and students perceive teaching and learning sexual anatomy and physiology in undergraduate A&P courses.

The purpose of the interview is to characterize how instructors teach and feel about teaching sexual anatomy and physiology in the undergraduate anatomy and physiology (A&P) classroom.

Preparation

Have the following available and prepared for the participant:

- 2 consent forms. One to fill out and one for the participant to keep.
- Blank paper
- Black pen

Participants

Interviewees are instructors in the United States that have experience teaching undergraduate A&P courses.

Interview Instructions

Explain the consent process with the statements below.
“The purpose of this interview is for me to explore how you teach and your thoughts about teaching sexual pleasure in the undergraduate A&P classroom. The interview will last 45-60 minutes and be recorded. We will transcribe that recording and de-identify your interview and the materials produced here. If at any time you’d like to stop the recording or end the interview, please let me know. I will address any questions now and/or after the interview.”

Digital form should have been provided to the participant. If they have not read it, share your screen and give them adequate time to read it. Provide the link for them to provide electronic signature for consent. (If signature is already provided, make sure to still show the consent form).

Explicitly ask if they read and understood the consent form and if they would like to participate in the interview: “After reading the consent form, would you still like to participate in this interview? Do I have your consent to record this interview?”

Have the participant digitally sign the consent form.

Please ask the following questions, presented in quotations, to the participant. Be sure to progress through groups in order; however, you may adjust the order of questions within a group according to relevance of responses. Be sure to cover all questions. Additional questions may be appropriate to help students reveal their thinking. Questions may be rephrased if unclear to the participant. Refrain from note-taking any information that will be caught by the audio recorder.

Please provide an attentive and welcoming environment for the participant.

Give the participant these instructions.

“These questions are just for me to understand your thinking. Don’t worry about giving me the ‘right answer.’ When you answer these questions, I want you to try and speak what you’re thinking. Speaking is definitely slower than thinking, and it can be kind of difficult and strange, if you’re not used to it. Try your best. I may interject questions when you are answering to get
clarifications, such as ‘what do you mean by that?’ or ‘where did you come up with that idea?’

Do you have any questions at this point?”

“Ok, we will get started”

**Background Questions**

Tell me a little bit more about your background as an A&P instructor (interests, expertise, research, classes they teach, etc.)

How did you start teaching A&P?

How many years have you been teaching A&P to undergraduates? How many sections do you teach?

How is your A&P course structured? Combined, one-semester, two semesters?

Who are the students that typically take the A&P course at your institution (e.g., major)? Whom does the A&P course cater to?

**Contextual Factors - Instructional Support**

What are the biggest influences on the content of your A&P course? (i.e. textbooks, online resources, etc.)

What resources do you use to design the content of your A&P courses?

Department resources?

Institutional resources? HAPS guidelines?

Standards?

Passed down from previous instructors?

What is your role in determining the content used for your A&P course? (e.g., complete autonomy, decided by others, work with others)
Instructors’ Practices on Teaching Sex

What are some of your favorite topics to teach in A&P?

What topics do you teach in the reproductive unit?

Do you include sex (i.e. sexual function) as a topic in your A&P course?

If yes,

In what unit is it included?

How do students react?

Could you describe how you include it in the content of your course or your approach to the lesson plan?

Do you teach about the human sexual response cycle? Why or why not?

What types of sexuality or sexual activity do you typically cover?

If yes to different types of sexuality or sexual activity, how?

If no,

Have you ever thought about teaching sex in your A&P course? Why?

Instructors’ Attitudes Towards Teaching Sex

Do you think sex is (or could be) an important topic in A&P? Why?

What is your comfort level when it comes to addressing sex in the classroom?

Instructors’ Practices on Teaching Sexual Pleasure

I am particularly interested in if and how sexual pleasure is being taught in the A&P context. Do you teach sexual pleasure in your A&P course?

If yes, how?

What tools, activities, materials, and resources do you use to teach sexual pleasure?
What is your reasoning behind including sexual pleasure in your A&P course?

What benefits have you found to implementing content about sexual pleasure in your A&P course?

If no, have you ever thought about teaching sexual pleasure in your A&P course?

Do you think sexual pleasure is an important topic to cover in A&P? Why?

What obstacles do you think there are to implementing content about sexual pleasure in your A&P course?

Please provide an example of a time when these obstacles have hindered your implementation of this content.

Can you describe any benefits you can think of in implementing content on sexual pleasure in your A&P course?

What would you have to change to incorporate sexual pleasure content into your A&P course?

Do you believe that the current curriculum prepares students to answer questions related to sexual health and pleasure? Why or why not?

Instructors’ Attitudes towards Teaching Sexual Pleasure

Do you think sexual pleasure is (or could be) an important topic in A&P? Why?

What is your comfort level when it comes to addressing sexual pleasure in the classroom?

Personal Factors

Now I’m going to ask some questions related to how your background informs your views of sex and sexual pleasure. If properly answering any of these questions would require you to share information you are not comfortable sharing, remember you don’t have to answer.
How, if at all, do you see your background/experiences influencing the way you approach discussions on sex and pleasure in the classroom?

How, if at all, do you see your sexual orientation or gender influencing the way you approach discussions on sex and pleasure in the classroom?

**Concluding Questions**

Would you be willing to share any material that you use to include content on sex and/or sexual pleasure for us to use for this research (e.g., syllabus, unit, assignments, lectures)? Purpose: To better understand how you are integrating these topics in your courses.

**Questions from the interviewee.** Explicitly ask if the interviewee has any questions.

Thank interviewee for their participation in the interview.
APPENDIX G

INSTRUCTOR INTERVIEW CONSENT FORM
Study Title: **Instructors’ Practices and Perceptions of Teaching Sexual Pleasure in Undergraduate Anatomy and Physiology (A&P) Courses**

Investigators

<table>
<thead>
<tr>
<th>Name</th>
<th>Dept</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brenda Kucha Anak Ganeng</td>
<td>Biology</td>
<td>(717) 802-5187</td>
</tr>
<tr>
<td>Heather Bergan-Roller, PhD</td>
<td>Biology</td>
<td>(815) 753-7421</td>
</tr>
</tbody>
</table>

Key Information

- This is a voluntary research study on “**Instructors’ Practices and Perceptions of Teaching Sexual Pleasure in Undergraduate Anatomy and Physiology (A&P) Courses**”.

- This study involves interviews and discussions regarding teaching and learning about anatomy and physiology (A&P) related to sexual pleasure in undergraduate A&P courses.

- The benefits include understanding the current state of anatomy and physiology within the biological field as well as the specific topics that instructors feel require more engagement and coverage as it pertains to content of sexual pleasure. This will allow for more direction in the design of compatible curricula that will maximize the applicability of knowledge that students receive as well as to empower. Benefits to instructors include opportunities to reflect on their approaches to instruction.

**Description of the Study**

The purpose of the study is to understand instructors’ teaching practices and perceptions of teaching and learning anatomy and physiology related to sexual pleasure. If you agree to be in this
study, you will be asked to participate in a one-time, one-on-one, audio-recorded interview that will last for approximately 45 – 60 minutes.

**Risks and Benefits**

There are no reasonably foreseeable risks, apart from potential discomfort with information disclosure regarding sexual pleasure in general.

This study will allow us to understand the current state of anatomy and physiology within the biological field as well as the specific topics that instructors and students feel require more engagement and coverage as it pertains to content of sexual pleasure. This will allow for more direction in the design of compatible curricula that will maximize the applicability of knowledge that students receive as well as to empower. Benefits to instructors include opportunities to reflect on their approaches to instruction.

**Confidentiality**

The records of this study will be kept strictly confidential. Research records will be kept in a locked file, and all electronic information will be coded and secured using a password protected file in a locked office. Audio recording and transcript of the interview will be accessed only by the authorized investigators of this study and used solely for the purpose of this research. On completion of the data analysis, the audio recording and transcript will be erased. Study records will be shredded (paper) or deleted (digital) after the study is completed. We will not include any information in any report we may publish that would make it possible to identify you.
Your Rights

The decision to participate in this study is entirely up to you. You may refuse to take part in the study at any time. Your decision will not result in any loss of benefits to which you are otherwise entitled. You have the right to skip any question or research activity, as well as to withdraw completely from participation at any point during the process.

You have the right to ask questions about this research study and to have those questions answered before, during, or after the research. If you have any further questions about the study, at any time feel free to contact the researcher, Brenda Kucha Anak Ganeng at banakganeng1@niu.edu or by telephone at (717) 802-5187, or Dr. Heather Bergan-Roller at hroller@niu.edu or by telephone at (815) 753-7421. If you have any questions about your rights as a research participant that have not been answered by the investigators or if you have any problems or concerns that occur as a result of your participation, you may contact the Office of Research Compliance, Integrity, and Safety at (815)753-8588.

Future Use of the Research Data

Your information collected as a part of this research will not be used or distributed for future research, even if all identifiers are removed.

Your signature below indicates that you have decided to volunteer as a research participant for this study, and that you have read and understood the information provided above. You will be
given a signed and dated copy of this form to keep, along with any other printed materials deemed necessary by the study investigators.

________________________________________________           _____________________
Participant’s Signature                                                                        Date

Your signature below indicates that you have consented to being audio recorded in the interviews you have participated in. You will be given a signed and dated copy of this form to keep, along with any other printed materials deemed necessary by the study investigators.

______________________________________________           _____________________
Participant’s Signature                                                                        Date