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On making nursing undergraduate human reproductive physiology content meaningful and relevant: Discussion of human pleasure in its biological context

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SUMMARY

The traditional presentation of the Reproductive Physiology component in an Anatomy and Physiology course to nursing undergraduates focuses on the broad aspects of hormonal regulation of reproduction and gonadal anatomy, with the role of the higher centres of the brain omitted. An introductory discussion is proposed which could precede the lectures on the reproductive organs. The discussion gives an overview of the biological significance of human pleasure, the involvement of the neurotransmitter dopamine, and the role of pleasure in the survival of the individual and even species. Pleasure stimuli (positive and negative) and the biological significance of naturally-induced pleasurable experiences are briefly discussed in the context of reproduction and the preservation of genetic material with an aim to foster relevancy between subject material and human behaviour in any type of society. The tenderness of this aspect of the human existence is well-understood because of its invariable association with soul-revealing human expressions such as love, infatuation, sexual flirtations, all of which are underpinned by arousal, desire and/or pleasure. Assuming that increased knowledge correlates with increased confidence, the proposed approach may provide the nurse with an adequate knowledge base to overcome well-known barriers in communicating with their patients about matters of sexual health and intimacy.

Introduction

A nurse's primary concern in any context is the patient's contentment, well-being and affectivity, which gives life its highly desirable quality. All of these are in line with the holistic nature of nursing care. It has been proposed that pleasure and pain are really two extremes of the same continuum (Houdart, 1999). By extension then, it could be expected that contentment, well-being and affectivity would most likely be associated with the pleasure half of the continuum although gravitating somewhat towards the centre of that continuum, and boredom midway in the continuum. Pleasure and enjoyment are defined as 'a state of happiness or personal satisfaction', and as 'sensual gratification or indulgence', respectively (Morris, 1973). Pleasure, the least forceful of the two, suggests 'superficial and transitory emotion resulting from the conscious pursuit of happiness', while enjoyment is 'relatively stronger in its implication of sustained happiness' (Morris, 1973). Whereas the negative side of the continuum, i.e. pain is well-studied in all of the health sciences, scattered information exists on the role of pleasure in a human being's welfare.

Physiologically, the pleasure experience is dependent on sensory stimuli from sources external to and internal in the body, e.g. visual and taste sensations. These explain the association of pleasure and enjoyment with, e.g. meeting friends, partying, holidays, listening to music, eating, and sexual intercourse. Unlike the others, pleasure associated with eating and sex is, biologically speaking, vital for human existence because acquiring and eating food, and sex are critical for individual/species survival (Esch and Stefano, 2004; Balfour et al., 2004).

Assuming then that the nurse's professional mandate of holistic and empathetic care falls within the pleasure–pain continuum, it is reasonable to argue then that current trends, e.g. inappropriate or excessive pleasure-seeking behaviour, in contemporary human society, and the unfortunate consequences of these, may place extra demands on the practising nurse's knowledge base, especially when the theory behind basic human pleasure experience is lacking or poorly understood in the undergraduate nursing curriculum. For example, partner violence or infidelity fuelled by jealousy and/or other power dynamics, and marital strife are the result of soul-revealing human expressions, such as love, infatuation, acceptance, sexual flirtations, with arousal, desire and/or pleasure often as motivating factors. One way in which human societies have tried for centuries to deal with such matters was with the imposition of religious/cultural restrictions and occurrence of taboos such as shame or guilt. An extreme view held of sex in this regard is that, within the confines of marriage, sexual obligation for purposes of procreation takes precedence over sexual pleasure (Higgins et al., 2009).

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Literature review

This paper intends to demonstrate how this message can be conveyed across to first year nursing students in a meaningful, though scientific way, irrespective of traditional or cultural contexts, and to draw attention to this neglected aspect in the teaching of human sexuality to professionals who have a professional mandate that spans the pain–pleasure continuum.

Several databases were searched including the British Nursing Index, EMBASE, ERIC, MEDLINE, OVID Nursing, PubMed, and SveMed+. In addition, searches were also performed separately on well-known search platforms, including ScienceDirect, Wiley Interscience and Springer. Search terms included nursing practise, sexuality, biology of pleasure, sex education, and physiology education. Although nursing practise and human sexuality were the topics of many investigations, none of these references touched on the topic of sexual pleasure or its biological significance. Houdart (1999) likewise found that a search of all literature in medicine, physiology, neurology and other subjects revealed a large body of evidence about or relating to pain, but nothing on pleasure. One relevant reference found was that of Norris (1985) who questioned the assumption that the goal of nursing is primitive pleasure, i.e. that nurses assist people to a basic state of pleasure. Other references which touched on the topic of health care and sexual pleasure include the survey results of Randolph et al. (2007), Higgins et al. (2008) and Brown et al. (2008) who drew attention to the negative experiences with male condoms, because of the perceived decrease in sexual pleasure, but which simultaneously has major implications for sexual risk practises and the sexual health of the woman.

The rest of the hundreds of references about nursing practise and human sexuality are generally sanitised portrayals of sexuality, with sexual intercourse relegated to an almost emotionally neutral act. All these references, e.g. Reynolds and Magnan (2005), Higgins et al. (2009), Jaarsma et al. (2010) and Julien et al. (2010), to name a few, have one recurring theme, i.e. nurses' lack of confidence, discomfort, embarrassment and lack of knowledge as barriers in discussing sexuality and intimate matters with their patients.

Inasmuch as attention having been drawn to perceptions of increasing medicalisation of everyday life, including physical intimacy (Foucolt, 1973; Armstrong, 2002), there is general agreement that the health care professional's mandate entails viewing the patient in an empathetic, supportive manner as a holistic being with biological, psychological, social, sexual and spiritual needs (Higgins et al., 2009). These notions agree in principle with other general sentiments calling for educational modules that transcend the traditional confines of subject disciplines and integrate principles of physiology into a broader, multidisciplinary setting capable of providing the desired unique educational benefits to any given target student group (see Keltner, 1996; Wynne et al., 1997; Near and Martin, 2007).

What most Physiology texts lack on the topic of human reproduction is the neurobiological aspect of sexual desire and pleasure, the part of sex all human beings can relate to. The rather de-eroticised and technical approach used by various textbooks to explain this section ill-prepares nursing students for their vocation. Key background information on the biological functions of basic human experiences, including pleasure, will help to demystify these aspects of human behaviour for nurses.

The nursing undergraduate Anatomy and Physiology course is often taught over one semester, with Reproductive Physiology the last topic to be presented for reasons of course context. With final exams also around the corner, a thorough discussion on a section of human physiology that has such an overarching reach on a person's mental well-being and behaviour is often not possible. This paper proposes an introductory discussion of about two lectures for a 1st year Bachelor in nursing class. The digital presentation which precedes the formal presentation of the anatomy and physiology of the reproductive organs, focuses on the biological and physiological roles of an innate human desire, i.e. pleasure/euphoria and the involvement of the neurotransmitter, dopamine. Links can also be made in a simplified manner with some of the underlying cell biology and neurobiology of human sexual physiology and individual/species survival to foster relevancy between subject material and human behaviour in various cultural contexts. Although not tested empirically, the scientific discourse outlined here reflects the teacher's teaching and research experience in reproductive biology.

Lecture content

Introduction to lecture

The lecture series begins by stating that at no other stage in human history than now, has humanity been so consumed with obtaining pleasure and enjoyment, often through positive experiences (e.g. food, social contact, music of all tastes and varieties) but regrettably also more and more through negative/destructive means (e.g. through use of addictive drugs, alone or combination with music, and sexual exploitation of women). Arguments have been put forward that all of these are symptomatic of societies trying to cope with the stress of fast-paced modern life. Whereas biology makes no distinction among the various sources of pleasure, humans have labelled different sources of pleasure as “good” or “bad”.

The innermost region of the most recognisable part of the brain (the cerebrum), is the limbic system, which acts as the link between higher cognitive functions, such as reasoning, and more primitive emotional responses, such as fear. A particular part of the limbic system rising out of the brain stem, comprising the ventral tegmental area (VTA) near the base of the brain, which in turn projects into the nearby nuclear accumbens (NAc), governs all behaviours in which motivation plays a central role, including acquiring food, and having sex (Balfour et al., 2004). The VTA is thought to be the positive reinforcement centre, or ‘pleasure centre’ and the NAc is involved in the processing or interpretation of signals. Dopamine is the principal neurotransmitter involved in these neural pathways of motivation and reward which are central to pleasure and which motivates the repetition of activities critical for our existence and survival.

To further simplify the idea that pleasure is a source of biologically beneficial motivational behaviour (Esch and Stefano, 2004), it is stated that “if there was no pleasure attached to the acts of eating or sex, nobody would have bothered to eat or have sex.” In order to ensure the repeat of life-sustaining activities, the nervous system is structured such that these activities are indeed associated with pleasure or reward (National Institute of Drug Abuse, 2008). Each time the brain's reward circuit is activated, the brain notes that something important is happening that needs to be remembered, and in this way we are taught to do it over and over again, without ever thinking about it. Thus, the more pleasurable an experience is, the more we are likely to repeat the action that elicited that feeling of pleasure. However, psychomotor stimulants, such as cocaine, amphetamine, opiates, nicotine and alcohol, also cause the release of dopamine in the NAc, regardless of the mechanism of action (Di Chiarra and Imperato, 1988). For example, just one dose of cocaine can release two to 10 times the amount of dopamine released by your favourite meal, person, song or sight (National Institute of Drug abuse, 2008). A recent study in healthy individuals also showed the release of dopamine in specifically the NAc in response to music occurred during the experience of peak emotional responses to music (Salimpoor et al., 2011). Since sight is the sensory stimulus often driving predominantly male sexual pleasures which are commonly associated with socially negative phenomena such as internet pornography, frequenting on strip clubs and brothels, and prostitution within or outside of strip bars/clubs, it should be readily apparent how the release of more than the natural amount of dopamine through this type of sensory stimulation may hijack signalling mechanisms in