

Nobel Awards and Nominations for Research/Activities Linked to Human Sexuality

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ABSTRACT

Objective: The research of scientists and meritorious activities of other individuals pertaining to human sexuality that had received Nobel class recognition is reviewed.

Methods: The official website of the Nobel Prize [<https://www.nobelprize.org/>] and the nomination database available via the website were searched and studied.

Results: Particularly, five prizes for chemistry and medicine/physiology category awarded in 1939, 1966, 1998, 2008 and 2010 were linked to research related to human sexuality themes. As of now, nine scientists (8 men and one woman) had received recognition. In addition, two Nobel Peace prizes awarded in 1979 and 2018 to three individuals (one man and two women) did recognize human sexuality themes. In addition, a total of 12 individuals (11 scientists and one woman nurse activist) contributing to research/activity related to human sexuality themes also had received Nobel nominations between 1901 and 1966.

Conclusion: Could it be that the prevailing Victorian view of puritanical sexual mores in Europe in the first half of the 20th century hindered awards of Nobel prize for research related to human sexuality themes? This reluctance eliminated pioneers on human sexuality research such as Sigmund Freud and those who contributed to developing syphilis detection and pregnancy detection methods from receiving Nobel recognition.

KEY WORDS

AIDS, erectile dysfunction, IVE, sexual violence, syphilis

INTRODUCTION

The working definition of human sexuality, as promoted by WHO (2006) has four sentences and 74 words, as follows: "...a central aspect of being human throughout life encompasses sex, gender identities and roles, sexual orientation, eroticism, pleasure, intimacy and reproduction. Sexuality is experienced and expressed in thoughts, fantasies, desires, beliefs, attitudes, values, behaviours, practices, roles and relationships. While sexuality can include all of these dimensions, not all of them are always experienced or expressed. Sexuality is influenced by the interaction of biological, psychological, social, economic, political, cultural, legal, historical, religious and spiritual factors"⁽¹⁾.

Awarding of Nobel prizes for meritorious research began in 1901. As is evident from the above definition for human sexuality, research on this theme covers a wide spectrum of areas covering anatomy, anthropology, biochemistry, behavioral science, clinical sciences, dermatology, endocrinology, gynecology, immunology, microbiology, neurology, obstetrics, pharmacology, physiology, psychology, surgery, venereology and virology. Due to the prevailing Victorian view of puritanical sexual mores in Europe in the first half of the 20th century^(2,3), one could posit that specifically awarding a Nobel prize for research on human sexuality themes was frowned upon, at least in the first half of the 20th century.

In this report, I review the research of scientists and meritorious activities of other individuals pertaining to human sexuality that had received Nobel class recognition. Based on the available data from Nobel nomination archives, research of scientists who were nominated for their contribution to human sexuality research and awareness are

also traced.

METHODS

The official website of the Nobel Prize⁽⁴⁾ was searched for data from 1901 to 2019 on the Nobel awards to scientists whose research ideas and/or findings have link to the theme of human sexuality. Access to the nomination database is available via this website. As of now, nominations details to the chemistry and peace prizes are available until year 1966. But, such details to the medicine/physiology prize are made available until 1953.

RESULTS

Table 1 provides a synopsis of 5 prizes for chemistry, medicine/physiology category awarded in 1939, 1966, 1998, 2008 and 2010 for research linked to human sexuality theme. Nine scientists (8 men and one woman) had received recognition. The first to receive such recognition was Adolf Butenandt, the 1939 Nobel prize for chemistry, 'for his work on sex hormones'. Between 1929 and 1934, he isolated three important sex hormones – female sex hormone oestrone, male sex hormone androsterone and female progesterone⁽⁵⁻⁷⁾. Restrictions imposed by

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Table 1: Nobel Awards in Chemistry, Medicine or Physiology and Peace for research/activities linked to Human Sexuality

Scientist	Year	Recognition
Chemistry¹		
Adolf Butenandt	1939	'for his work on sex hormones'
Medicine or Physiology²		
Charles Huggins	1966	his discoveries concerning hormonal treatment of prostatic cancer'
Robert F. Furchgott,	1998	↑ 'for their discoveries concerning nitric oxide as a signaling molecule in the cardiovascular system'
Louis J. Ignarro	1998	
Ferid Murad	1998	
Harald zur Hausen,	2008	'for his discovery of human papilloma viruses causing cervical cancer'
Francoise Barre-Sinoussi	2008	↑ 'for their discovery of human immunodeficiency virus (HIV)'
Luc Montagnier	2008	
Robert G. Edwards	2010	'for the development of in vitro fertilization'
Peace³		
Mother Teresa	1979	[specific citation not indicated]
Denis Mukwege	2018	↑ 'for their efforts to end the use of sexual violence as a weapon of war and armed conflict'
Nadia Murad	2018	

¹source: <https://www.nobelprize.org/prizes/lists/all-nobel-prizes-in-chemistry>

²source: <https://www.nobelprize.org/prizes/lists/all-nobel-laureates-in-physiology-or-medicine>

³source: <https://www.nobelprize.org/prizes/lists/all-nobel-peace-prizes>

the Nazi government of Germany at that time forced Butenandt to decline the award in 1939⁸). Subsequently, he did receive the diploma and the medal devoid of cash award. Butenandt couldn't deliver the ceremonial Nobel lecture as well.

Charles Huggins, one of the two recipients of the 1966 Nobel prize in medicine, contributed to the finding that cancers in breast, prostate, endometrium and seminal vesicle in humans are hormone responsive. According to Huggins, 'The concept of hormone dependence of cancers arose from experimental study of the activity of prostatic glands, of both the normal and the malignant kind'^{9,10}.

The 1998 Nobel prize for medicine awarded to Robert Furchgott, Louis Ignarro and Ferid Murad 'for their discoveries concerning nitric oxide as a signaling molecule in the cardiovascular system' was partially associated with the development of a pharmaceutical cure for male erectile dysfunction — the selective type 5 phosphodiesterase (PDE) inhibitor (sildenafil, aka Viagra). The press release included two sentences ['*NO can initiate erection of the penis by dilating the blood vessels to the erectile bodies. This knowledge has already led to the development of new drugs against impotence.*'] highlighting this fact¹¹⁻¹⁴.

The 2008 Nobel prize for medicine was a split award for research on (1) the discovery of human papilloma viruses (HPV) causing cervical cancer to Harald zur Hausen and (2) the discovery of human immunodeficiency virus (HIV) to Francoise Barre-Sinoussi and Luc Montagnier. Both viruses are sexually transmitted. The press release highlighted the following facts relating to HPV: '*Infection by the human papilloma virus is the most common sexually transmitted agent, afflicting 50-80% of the population. Of the more than 100 HPV types known, about 40 infect the genital tract, and 15 of these put women at high risk for cervical cancer. In addition, HPV is found in some vulval, penile, oral and other cancers. Human papilloma virus can be detected in 99.7% of women with histologically confirmed cervical cancer, affecting some 500,000 women per year*'¹⁵.

Regarding the 2008 selections, the omission of American virologist Robert C. Gallo in the laureate list did generate minor flutter. In its letters column, *Science* published a critical letter entitled 'Unsung hero Robert C. Gallo' authored by 106 scientists (some of them co-authors

Table 2: Specific Citations for the Scientists nominated to a Nobel Prize

Scientist ¹	Specific Citation for the Prize
Albert Neisser (1855-1916)	work on gonorrhea, syphilis, experimental syphilis, syphilis and prostitution as well as prevention of venereal diseases
Sigmund Freud (1856-1939)	work on neuroses and perversions, subconscious states
Eugen Steinach (1861-1944)	work on transplantation of reproductive glands and particularly on rejuvenation
August P. Wassermann (1866-1925)	Wassermann reaction to identify syphilis
Erich Hoffmann (1868-1959)	discovery of causative pathogen of syphilis <i>Treponema pallidum</i>
Fritz Schaudinn (1871-1906)	discovery of causative pathogen of syphilis <i>Treponema pallidum</i>
Sahachiro Hata (1872-1938)	discovery of anti-syphilitic activity of arsphenamine (Salvarsan 606) for effective treatment of syphilis.
Hideyo Noguchi (1876-1928)	work on syphilis, cultivation of spirochaete <i>T.pallidum</i>
Selmar Aschheim (1878-1965)	work on hormones of pituitary gland and pregnancy reaction
Margaret Sanger (1879-1966)	international importance for campaign on birth control
George N. Papanicolaou (1883-1962)	for developing a diagnostic smear test for uterus carcinoma
Bernhard Zondek (1891-1966)	for developing reliable pregnancy testing method
Carl Djerassi (1923-2015)	for developing synthetic birth control Pill ²

¹Arranged in the order of year of birth. Margaret Sanger is an exception, a nurse by training.

²not indicated in the released data of Nobel nomination archive.

and acolytes of Gallo) that though Barre-Sinoussi and Montagnier isolated the HIV virus, they 'could not establish whether it was the AIDS virus, an achievement accomplished by Gallo and colleagues just one year later'¹⁶. It seems that the bitter priority dispute between Montagnier and Gallo in mid 1980s and subsequent research fraud claims against Gallo had strongly influenced the exclusion of Gallo for the 2008 Nobel award.

Unlike the 2008 Nobel award, there was no controversy with the 2010 award that recognized the development of in vitro fertilization (IVF) technique and given to Robert G. Edwards. It was recognized in offering a solution to the infertility problem suffered by over 10 percent of married couples globally. The press release related to this award indicated that "More than 10% of all couples worldwide are infertile. For many of them, this is a great disappointment and for some causes life-long psychological trauma. Medicine has had limited opportunities to help these individuals in the past. Today, the situation is entirely differ-

Table 3: Nobel Prize nominations¹ for medicine or physiology, chemistry, literature and peace for research/activities linked to Human Sexuality

Scientist ²	No. of Nominations ¹ submitted	Year ³
Albert Neisser	22	1906(1), 1980(2), 1910(3), 1911(3), 1912(2), 1913(4), 1914(1), 1915(1), 1916(5)
Sigmund Freud ⁴	33	1915, 1917, 1918, 1919, 1920, 1927(4), 1929(2), 1932, 1933(2), 1936(3)#, 1937(14), 1938
Eugen Steinach	11	1921, 1922, 1927, 1930 (3), 1934, 1938 (4)
August von Wassermann	45	1910(9), 1911(4), 1912(5), 1913(6), 1914(1), 1915(3), 1916(3), 1919(2), 1920(3), 1921(3), 1922(2), 1923(1), 1924(3)
Erich Hoffmann	3	1907,1910, 1936
Fritz Schaudinn ⁵	4	1906(2), 1907(1), 1909(1)
Sahachiro Hata ⁶	3	1911(1), 1912(1), 1913(1)
Hideyo Noguchi	24	1913, 1914 (4), 1915 (2), 1920 (2), 1921 (2), 1924 (1), 1925 (8), 1926 (3), 1927 (1)
Selmar Aschheim	10	1931, 1932, 1934, 1936(4), 1937, 1952, 1953
Margaret Sanger ⁷	31	1953(6), 1954(2), 1955, 1956, 1960(20), 1963
George N. Papanicolaou	18	1948(2), 1949(7), 1951, 1953(8)
Bernhard Zondek	26	1931(2), 1932, 1933(2), 1934(4), 1935(6), 1936(5), 1937(2), 1938
Carl Djerassi ⁸	8	1962, 1964(2), 1965(2), 1966(3)

¹source: <https://www.nobelprize.org/nomination/archive/> All nominations were for the prize in Medicine or Physiology, unless indicated otherwise.

²Arranged in the order of year of birth. Margaret Sanger is an exception, a nurse by training.

³Numbers within parenthesis following the years indicate the total number of nominations for the scientist, for that particular year.

⁴Nominations for Medicine/Physiology 32, nomination for Literature 1.

⁵posthumous 1909 nomination was disregarded, according to the stipulated rules.

⁶The 1911 nomination was for the chemistry prize.

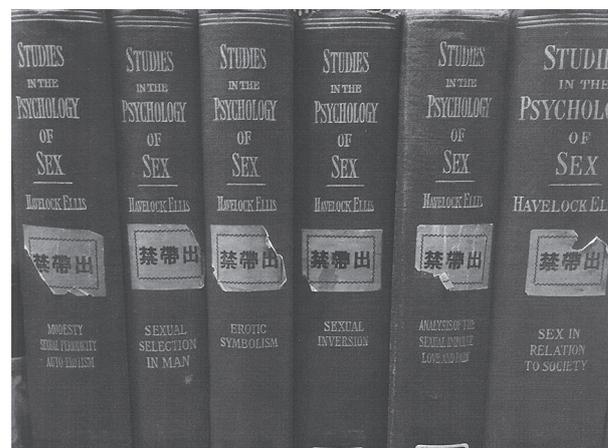
⁷All nominations for Sanger was for the prize in Peace.

⁸All nominations for Djerassi was for the prize in Chemistry.

Table 4: Peer recognition by Nobel laureates, for the Nobel Prize nominations¹ submitted to medicine or physiology and chemistry on behalf of Scientists

Scientist ²	Recognized Nobel laureate(s)	No. of Nominations supporting the scientist
Albert Neisser	Paul Ehrlich	6
Sigmund Freud	Robert Barany Edgar Adrian Julius Wagner-Jauregg Otto Loewi Romain Rolland	4 2 1 2 1
August P von Wassermann	Paul Ehrlich Wagner von Hauregg	6 1
Sahachiro Hata	Emil Kocher	1
Hideyo Noguchi	Alexis Carrel	4
Bernhard Zondek	Otto Meyerhof Otto Loewi	1 2
Carl Djerassi	Tadeus Reichstein Derek Barton	2 1

¹source: <https://www.nobelprize.org/nomination/archive/> Unless indicated otherwise, all nominations are for the prize in Medicine or Physiology.

**Figure 1: Six volumes of 'Studies in the Psychology for Sex' by Havelock Ellis.**

ent. In vitro fertilization (IVF) is an established therapy when sperm and egg cannot meet inside the body."¹⁵ One disappointment related to the 2010 prize was that as two other members who collaborated with Robert Edwards, namely gynecologist Patrick Steptoe (1913-1988) and nurse technician Jean Purdy (1945-1985) had died earlier, they couldn't share the glory of being a Nobel laureate¹⁷⁻²⁰.

Also included in Table 1 are two prizes for Peace category awarded in 1979 and 2018 for individuals who had championed and promoted specific ideals related to human sexuality. These two Peace prizes recognized three individuals (one man and two women). Though a specific citation for Mother Teresa's 1979 prize was not indicated in the honor roll, campaign against selective abortion was one her prominent planks. Even in her Peace Prize lecture, Mother Teresa explicitly delivered her message as follows:

"I feel the greatest destroyer of peace today is abortion, because it is a direct war, a direct killing — direct murder by the mother herself.... And today the greatest means — the greatest destroyer of peace is abortion. And we who are standing here — our parents wanted us. We would

not be here if our parents would do that to us."²¹⁾

The 2018 Nobel Peace prize was awarded to physician Denis Mukwege (b. 1955) from the Democratic Republic of Congo and Ms. Nadia Murad (b. 1993) of Iraq 'for their effects to end the use of sexual violence as a weapon of war and armed conflict'.²²⁾

Tables 2-4 provide details of scientists whose research/activity resulted in nominations to the Medicine/physiology, Chemistry and Peace prizes, between 1901 and 1966. A total of 12 individuals (11 scientists and one woman nurse activist) are identified in these three tables. Nominations related to sexuality research presented in these tables, can be broadly categorized as follows:

- (1) related to Syphilis: Neisser, Wassermann, Hoffmann, Schaudin, Hata and Noguchi
- (2) related to Pregnancy detection: Aschheim and Zondek
- (3) related to birth control: Sanger and Djerassi
- (4) Other themes: Freud (sexuality theory and patient care), Steinach (male reproductive surgery) and Papanicolaou (gynecological cancer)

Table 4 presents information that 7 among the 11 nominated scientists in Tables 2 and 3, had received nominations from peer Nobelists, indicating the quality of their contributions. Among the 7, Freud had received Nobel nominations from 5 Nobelists.

DISCUSSION

Though the five Nobel prizes awarded in 1939, 1966, 1998, 2008 and 2010 for research linked to human sexuality theme was accepted graciously by the scientific community and public, the anti-abortion views expressed by Mother Teresa (1979 Nobel Peace prize recipient) did receive opposition and criticism from feminists, pro-abortion activists like Australian feminist Germaine Greer and British journalist-muckraker Christopher Hitchens^{23,24)}. Motives and misdirections of Mother Teresa's detractors have been questioned as well^{25,26)}.

In his 2018 Nobel Peace prize lecture, Denis Mukwege presented the representative case of one of his patients; 'Sarah' — a Congolese woman patient, who made recovery after being gang raped daily until she lost consciousness; and admitted to his hospital in a critical condition²⁷⁾. A retrospective study by Mukwege *et al.*²⁸⁾ on 205 girls, aged 5 years or younger, who suffered from rape injuries was published in 2015.

Sigmund Freud's '*Three Contributions to the Theory of Sex*' first appeared in 1905. The three themes he focused on this work were, sexual aberrations, infantile sexuality and transformations of puberty²⁹⁻³¹⁾. Freud did receive 33 nominations between 1915 and 1938 for his wide ranging contributions to human sexuality and 5 Nobelists had supported his candidacy by their nominations. Among the 33 nominations for Freud, 32 were for the Medicine prize, and only one was for the Literature prize. Nevertheless, Freud's contributions were not positively rated by Swedish psychiatrists, especially Bror Gadelius (1862-1938)^{32,33)}.

Meritorious relevance in advancing human sexuality studies by other nominated researchers have been covered previously by historians, chroniclers and obituarists, as follows: Albert Neisser³⁴⁾, Eugen Steinach³⁵⁻³⁹⁾, August P. Wassermann⁴⁰⁾, Erich Hoffmann^{41,42)}, Fritz Schaudinn^{41,43)}, Sahachiro Hata⁴⁴⁾, Hideyo Noguchi^{44,45)}, Selmar Aschheim^{7,46)}, Margaret Sanger⁴⁷⁻⁵¹⁾, George Papanicolaou⁵²⁻⁵⁵⁾, Bernhard Zondek^{7,46,56)} and Carl Djerassi^{57,58)}.

It should also be noted that Freud's contemporaries and rivals who did contribute to human sexuality failed to receive even a single nomination for the Nobel prize. These include Havelock Ellis (1859-1939), Albert Moll (1962-1939), Magnus Hirschfeld (1868-1935) and Iwan Bloch (1872-1922). It is tempting to postulate that some character deficits displayed Ellis⁵⁹⁾ (Fig.1, shows his 6 volumes of '*Studies in the Psychology of Sex*'), and professional rivalry between Moll⁶⁰⁻⁶²⁾ and Hirschfeld⁶⁰⁻⁶²⁾ might have played a role in eliminating their Nobel worthiness.

CONCLUSION

One can infer that due to the prevailing Victorian view of puritani-

cal sexual mores in Europe in the first half of the 20th century, specifically awarding a Nobel prize for research on human sexuality themes was hindered. Thus, pioneers on human sexuality research including Sigmund Freud and those who contributed to developing syphilis detection and pregnancy detection methods lost out in receiving Nobel recognition.

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