HRT in the Media - A History and Study of Hormone Replacement Therapy in Lay and Professional Media

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Introduction

As a young woman studying Medicine, the gender gap in healthcare is both a personal and scientific interest. The menopause was a highly taboo topic for many generations, and only recently has discourse surrounding this area of women's health begun to circulate. I will, inevitably, experience the menopause. When that time comes, I hope that I will feel equipped with the best quality information, and that I can make fully informed choices about my own healthcare. According to GoogleTrends, there has been a steady increase in searches for both 'menopause' [1] and HRT [2] in the last 5 years. People want to know more about these topics, but must wade through unlimited information when searching. The aim of this research project was to provide some clarity on the quality of evidence presented in the media, through discussion and examination of the origins of sources and their authors.

The menopause

Menopause, as defined by the National Institute for Health and Care Excellence, is "a biological stage in a woman's life when menstruation stops permanently due to the loss of ovarian follicular activity" [3]. All biological women will experience the menopause at some point in their lifetime, with the average age in the UK being 51 [3]. Menopause is a retrospective diagnosis, meaning it is only given 12 months after the patient's last period. Irregular menstruation coupled with vasomotor symptoms, such as hot flushes, indicates a diagnosis of perimenopause [4]. This simply refers to the time leading up to menopause, when there is a decline in hormones produced by the ovaries, namely oestrogen and progesterone [5].

Currently, the recommended medical intervention for menopausal symptoms is Hormone Replacement Therapy [6]. A HRT regime contains both oestrogen and progesterone, and can be taken orally or transdermally. Testosterone is not currently licensed for treatment of menopausal symptoms in the UK, although it can be prescribed off label to help with low libido [7].

Women and Healthcare

When reading media sources detailing HRT and menopause, the underlying sense of frustration is almost palpable. Women feel ignored by medical professionals, and they are angry. As a consequence, there is a growing animosity between women and their healthcare providers.
Women have been traditionally underrepresented in medical research, and research shows that they may actually receive poorer healthcare than men [8]. Additionally, in a recent UK survey on women's opinions

of healthcare, 84% reported times when they had not been listened to by healthcare professionals, and only around 9% felt they were equipped with enough information about the menopause [9]. With this information in mind, it is not surprising that many turn to media outlets to answer questions about their own health. In fact, in the same study, 71% of respondents said they relied on Google for health information. While this practice may create a false sense of control over one's own health, it makes women an ideal target for marketing teams. Private clinics with convincingly aesthetic websites can present HRT as more of a 'wonder drug' than it really is. There are millions of sources discussing women's health, including the menopause and HRT, and no limitations on who can share opinions. It is incredibly difficult to determine which sources are reliable and which claims are evidence backed. Personal opinions and anecdotes can easily be presented as facts and evidence.

A brief history of HRT

In order to understand the depiction of HRT in current media, we must examine its history. Hormone Replacement Therapy first became available to the UK market in 1965 [10]. This introduction coincided with the popularisation of the 1966 book by Robert A. Wilson; *Feminine Forever*. Wilson heralded oestrogen therapy as a recipe for "age-defying youthfulness", with a promise that "at fifty, these women still look attractive in tennis shorts or sleeveless dresses" [11, page 16]. This deeply misogynistic book planted the seeds that HRT can, and should, be used as an aesthetic tool. It perpetuates the ideal that women should not age, but rather strive for youthful beauty in order to remain desirable. Wilson presents his research as almost groundbreakingly feminist (11, page 17) and insists he has the "health and happiness" [11, page 18] of all women in mind. Yet with further reading, we realise that his main concern is maintaining "supple breast contours" [11, page 16] and ensuring the vagina does not become "stiff and unyielding" [11, page 18]. There is nothing feminist about the use of oestrogen for the sexual benefit of men. Despite this blatant sexism, the book sold over 100,000 copies in the months after its release [12, page 105]. In 2001, an insidious revelation was made about the book*:* its writing and publishing had been financed by Wyeth-Ayerst [13], a major pharmaceutical company that is now owned by Pfizer [14]. The opinions shared in Wilson's best selling book were inextricably linked to the financial gain they garnered, for both the author and Wyeth-Ayert. This was one of the many reasons we chose to examine Conflicts of Interest in our research project.

While today we may easily discount Wilson's musings as the misogynistic beliefs of long gone tradition, we cannot be so naive as to think they have not followed us into the modern age. The view that menopause is the "death of [....] womanhood" [11, page 15] still holds true to some degree. We only have

to look as far as the language used in menopause marketing. Claims that HRT keeps one's "skin plump" and helps "manage weight gain" prove that women's insecurities are still easy targets for marketing teams.

The initial popularity of oestrogen therapy was short-lived, as research began to link HRT with increased incidence of endometrial (womb) cancer [15]. In 1998, the Women's Health Initiative (WHI) study began. It was the largest randomised study focussing on the effect of HRT on mortality and morbidity in postmenopausal women at that time [16]. The initial interpretation of the study results were that combined oestrogen and progesterone HRT regimes "increased the risk of invasive breast cancer, coronary heart disease, stroke and venous thromboembolism" [16]. These results were published over the period of 2002 to 2006, and a media storm ensued. In a small study of twenty local and six regional newspapers, it was found that in the first month after publication of the WHI results, the number of newspaper articles concerning HRT was 8 times more than at any other prior time period [17]. This of course had a direct impact on the public's opinion, and subsequent use, of HRT. A small UK based study found a steady monthly decline in HRT among women aged 50 to 74 after the publication of WHI results [18], which can plausibly be linked to the media coverage. Of course, with the maelstrom of negative media, it could not be considered unreasonable for a woman to discontinue her HRT regimen. With concerns of cancer, coronary heart disease and stroke, the benefits were suddenly far outweighed the risks. However, in recent reanalysis, it seems the initial conclusions drawn may have been flawed [16]. A key criticism of the study calls into question the use of relative risk vs absolute risk. In a critique written by James H. Clark, it is highlighted that presenting a relative risk without the inclusion of the absolute risk can be extremely misleading. He uses the example of Coronary Heart Disease. According to the WHI study, there was a relative risk increase of 29% compared to the placebo group. However the absolute risk was only 0.07%. This may be statistically significant, but is arguably clinically insignificant. This is an important lesson on how the presentation of data directly influences its interpretation, and should remind us to remain vigilant, even in the face of scientific data.

It is also important to note that conjugated equine oestrogen was used in the study, and this formulation of oestrogen is now considered outdated, as it is thrombogenic and may be linked to more hypertensive responses [20]. It is now being replaced with the more favoured "body identical HRT", containing oestradiol, which is viewed as safer [21].

The rich history of HRT now intertwines with modern opinions. The internet serves as a platform for this perpetually unyielding discourse. Menopausal women could easily be persuaded to either side of two very convincing yet conflicting arguments. My time spent researching in this space has left me feeling entirely empathetic to any woman faced with the decision whether or not to start HRT.

My research, methods and ideas

The aim of this research project was to investigate the current opinions of HRT in the media, and compare them with the available NICE recommendations. The role of NICE as a governing body is to provide guidance regarding healthcare to ensure national alignment with the best available evidence [22]. We wanted to establish what type of claims are being made, and assess if they are in agreement with the advice from NICE. This would then allow conclusions to be drawn about the quality of information presented in online sources. Data was also collected on Conflicts of Interest (COIs) found in these sources. According to NHS England, a conflict of interest "occurs where an individual's ability to exercise judgement, or act in a role, is or could be impaired or otherwise influenced by his or her involvement in another role or relationship" [23]. The aim was to discern whether a COI, financial or otherwise, could be linked to the likelihood of agreement/disagreement of a source with the NICE guidelines. For example, it is possible that a commenter that has a financial relationship with a private menopause clinic may be more likely to speak in favour of HRT, citing benefits that are not listed by NICE.

In the long term, it is hoped that this project will bring more clarity to women seeking information online regarding recommendations for HRT, as there is a plethora of information and opinions online.

This was a cross-sectional study, with data being extracted from 30 sources from Google, Instagram, YouTube, Twitter and TikTok. Where possible, researchers utilised 'incognito' browsers to minimise the impact of algorithms on results shown. Key information, such as type of source and viewership, was inputted into a spreadsheet, alongside any claims made for HRT, including for testosterone. These claims were coded using abbreviations, for example 'LM' for low mood or 'SK' for skin improvements. Based on any claims found within the original source or elsewhere linked, it was then decided whether each one agreed or disagreed with NICE guidelines. It must be noted here that a "disagreement" was considered to be any claim that went beyond that which was recommended by NICE/MHRA. Often, sources that disagreed were speaking in favour of HRT, but stating more advantages than listed by NICE. Screenshots were taken of each source and stored in a FigShare folder for accountability. The initial selection and coding was carried out by one researcher. A second researcher then coded the same sources, without looking at the original researcher's codes, to increase reliability and eliminate bias. Two additional researchers from the University of St Andrews and Trinity College Dublin were on hand to help resolve discrepancies. A similar method was applied to tabulating COIs. Any non-UK sources were excluded, as were any posts discussing HRT shortages or HRT for gender affirmation.

Results and food for thought

It was found that 67% of the Google sources disagreed with NICE guidelines [Figure 1]. 73% of all the Google sources had a COI. However, little difference was found between the percentage of COIs among sources that disagreed (75%) and the percentage of COIs among sources that agreed (70%). The most common type of source found was Healthcare Organisations (47%), followed by Professional Organisations (23%). HRT as a treatment for low mood was the most common recommendation found on Google, followed closely by cognitive improvement [figure 6]. 27% of websites studied also contained a claim for testosterone (beyond the recommendations made by NICE).

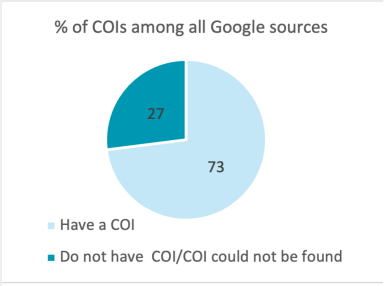

Figure 1

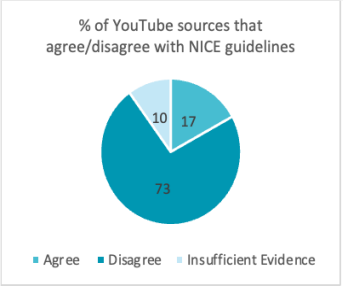

Figure 2

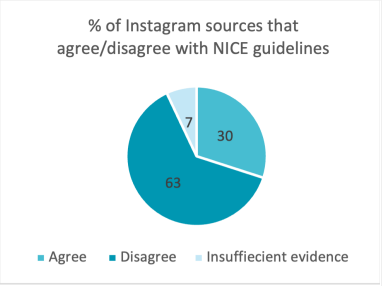

Figure 3

73% of the YouTube sources disagreed with NICE guidelines [Figure 2]. Of all the sources searched, 57% had a COI. Interestingly, the percentage of COIs among sources that disagreed with NICE guidelines [Figure 5] was much higher than the percentage found among those that agreed with NICE guidelines [Figure 4], 64% vs 40%. The most common type of channels producing the videos were Professional Organisations (53%) and personal YouTube channels (40%). In terms of claims made for HRT, cognitive improvement was the most common, and 73% of sources making this specific claim had a COI. 33% of sources viewed also contained a claim for testosterone.

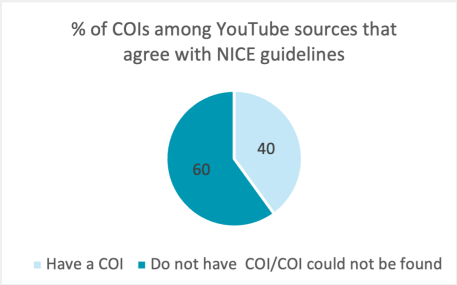

Figure 4

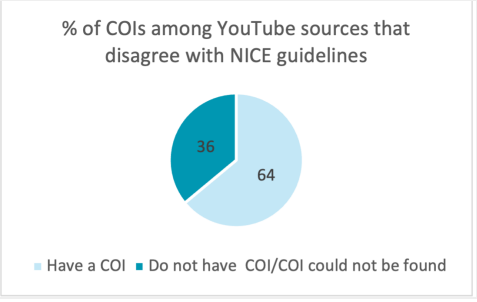

Figure 5

Both Google and YouTube have a similarly high proportion of disagreement with the NICE guidelines [Figures 1&2]. However, the differences between the media platforms can be easily seen in relation to COIs. From the data, it seems that, for a Google source, the presence of a COI may not affect the likelihood of agreement/ disagreement with NICE. Contrastingly, for YouTube, if a source has a COI, it is more likely to disagree with NICE recommendations. Commenters with a COI may experience financial gain if HRT is more popular, so may be more likely to cite additional benefits for HRT, other than those listed by NICE. According to a UK Parliament survey on menopause in the workplace, 'memory/concentration' problems are the second most common menopausal symptom [24]. It is therefore unsurprising that cognitive improvement was the most common claim on YouTube and the second most common on Google [Figure 6]. For YouTube sources, the high proportion of sources with a COI claiming cognitive improvement suggests a link between the presence of a conflict of interest and the likelihood of claiming specific uses for HRT. The 75% of women who experience these cognitive issues [24] are a large market for private menopause clinics, therefore we must ask ourselves if these sources are biassed.

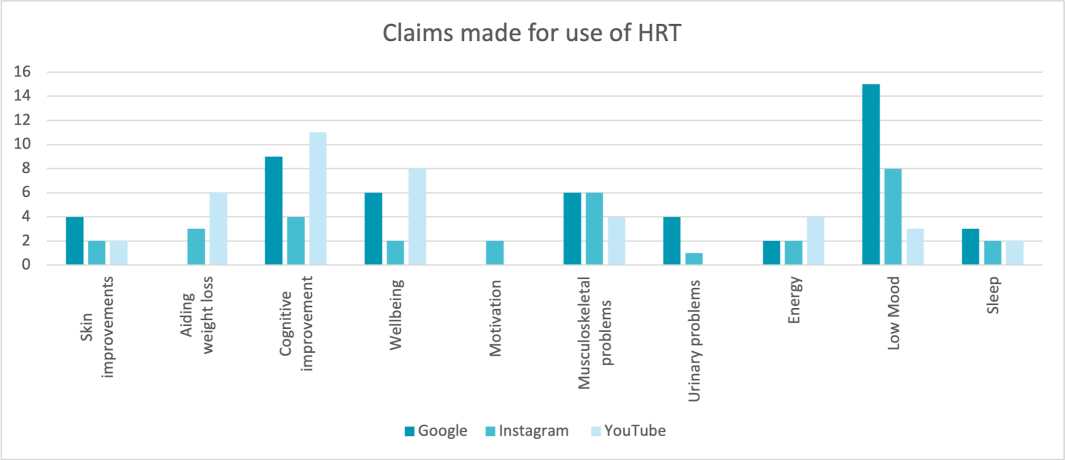

Figure 6

Conclusion

This project does not state any opinion in support of or against the use of HRT, but simply aims to raise awareness around its presence in the media and the quality of sources available. We must keep in mind that many claims that ‘disagree’ with NICE are not necessarily untrue, they just have not been acknowledged by NICE as having enough evidence [25]. We know that women’s health is an under researched field, so these claims may be proven in the future. It is also important to consider tone and wording for these claims. For example, while NICE does not state that HRT absolves sleeping problems, it is proven that minimising hot flashes (which can be treated with HRT) could improve sleep quality [26].

Therefore HRT may improve sleep problems if vasomotor instability is the root cause. However, it is not evidence backed to state that HRT improves general sleep quality.

One of the main takeaways from this research project is the prevalence of conflicts of interest in online sources about HRT, and subsequently their impact on the opinions of the source. Of all the Google and YouTube sources searched, 65% had a COI. This calls into question how reliable these sources are, and whether they are evidence backed or impacted by bias. I believe Evidence Based Medicine (EBM) is the safest way to speak about medication and procedures online. EBM is the practice of using only the best available data to steer clinical practice [27]. Patients should do their best to ensure the information they are consuming is evidence based, however this can be incredibly difficult when wading through swathes of YouTube videos or Google hits.

Another interesting observation is the role of anecdotal evidence in popularising certain treatments, namely HRT. With a large percentage of the YouTube claims coming from personal channel sources, we must be aware that these commenters may not be making recommendations, but simply sharing experiences. However, it is very plausible that these videos, some with upwards of 100,000 views, could be influencing the population. Anecdotal evidence does not hold the same value as scientific evidence [28]. In order to prevent undue significance being assigned to these personal experiences, it is pertinent that disclaimers are made before speaking about medical topics if personal opinions are being given.

The greatest challenge that I encountered during this research program was balancing emotion and logic in order to remain both empathetic and impartial. Much of the online conversation centred around the feelings of women as they shared their stories. Some women felt HRT was a form of medical magic, while others denounced the ‘over medicalisation’ of a natural process. Speaking to the different menopausal women in my life showed me the spectrum of opinions and experience, even in a small sample size. While writing this essay, I have strived to remain aware and respectful to all opinions. I hope that my research can be a useful informative tool to all people, menopausal or not, and of any opinion. While it is true that emotion can cause bias in research, I truly believe that the best medical research is rooted in passion, and so did not shy away from my own connection to this topic, but rather used it to steer my writing and keep focus on the positive impact of this project.

The clear outcome of our small study is that information in the media is conflicted and inconsistent. It can be difficult to tell if a source contains a Conflict of Interest, and often impossible to navigate which opinions are being presented as fact. A question that is therefore raised is where does the responsibility of ensuring quality information online lie? Should it be up to patients or professionals to guarantee that

information is evidence based? Currently, it seems the onus is on laypeople to remain critical when consuming medical media.

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