

# Attitudes towards the male contraceptive pill: psychosocial and cultural explanations for delaying a marketable product

## Regards sur la pilule contraceptive masculine : enjeux culturels et psychosociaux expliquant le report d'un produit commercialisable

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**Abstract** Even though years of research on the male contraceptive pill have been conducted, a marketable product is still absent from the arsenal of male and female products of contraception. In this paper, the following psychosocial and cultural factors have been elicited from the literature in order to reveal explanations for this delay: acceptability, trust, fear of side-effects, perceptions of contraceptive responsibility and fear of losing connotations of masculinity. Regardless of cultural variation, overall there seems to be a positive attitude towards the acceptability of male contraceptive for both males and females, especially males in stable relationships. Some indication shows that the media have played an important role in distorting the results of research regarding male and female trust. Ongoing and future researches into several projects on psychosocial and cultural factors are described.

**Keywords** Acceptability · Attitudes · Contraceptive responsibility · Male pill · Masculinity · Psychosocial factors

**Résumé** Alors même que la pilule contraceptive masculine a fait l'objet d'années de recherche, sa commercialisation est toujours absente de l'arsenal des méthodes de contraception pour les hommes et les femmes.

Cet article a pour but de mettre à jour des explications à ce retard. Par une analyse de la littérature, menée par une recherche sur sept bases de données en utilisant une combinaison de plusieurs mots clés (pilule masculine, contraception masculine hormonale, attitudes, et psychologie), les auteurs ont mis en évidence les facteurs culturels et psychosociaux suivants : l'acceptabilité (hypothétique et dans les

essais cliniques), la confiance – les femmes feraient-elles confiance à leur partenaire pour utiliser une pilule masculine efficacement, et les hommes auraient-ils confiance en eux-mêmes –, la peur des effets secondaires, les perceptions de la responsabilité contraceptive et enfin la peur de la perte de masculinité.

Sans se soucier des variations culturelles, il semble globalement exister une attitude positive à la fois des hommes et des femmes en ce qui concerne l'acceptabilité d'une contraception masculine, plus particulièrement pour les hommes qui sont dans une relation stable.

Il existe par ailleurs quelques indices laissant percevoir que les médias ont joué un rôle important en dénaturant les résultats de la recherche concernant la confiance des hommes et des femmes en l'utilisation d'une contraception masculine.

Les auteurs développent enfin plusieurs projets de recherche en cours sur les facteurs culturels et psychosociaux. Ils soulèvent aussi la nécessité d'un modèle intégré de ces facteurs qui formatent les attitudes envers la pilule masculine, modèle nécessaire à l'évaluation de la variation psychosociale globale qui distingue les hommes les uns des autres dans la compréhension de la contraception hormonale masculine.

**Mots clés** Acceptabilité · Regards · Responsabilité de la contraception · Pilule masculine · Masculinité · Facteurs psychosociaux

## Introduction

Choices in male contraceptive methods are still limited to coitus interruptus, periodic abstinence, condom use or vasectomy. These methods have been criticised for being irreversible (vasectomy), as well as being inadequate (coitus interruptus and periodic abstinence) [1]. Furthermore, condoms

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are typically used in casual sexual encounters or the early stages of a relationship, and are often abandoned once a relationship becomes 'serious' [2]; they have also been criticised for having an unacceptably high failure rate [3,4]. Female contraceptive methods, on the other hand, have been shown to be more reliable and successful, especially since the introduction of the female pill in the sixties. Nonetheless, 50% of the 1,000,000 conceptions occurring daily have been reported to still be unplanned [5]. In times of governmental pleas for declining birth-rates around the globe and observed changes in the traditional gender roles in family life, the development and introduction of a male contraceptive pill, which interestingly according to Manetti and Honig [6] predated the female pill through research on the effects of testosterone on the suppression of spermatogenesis in 1939, "... is surely long overdue"; especially since "men enjoy the pleasures of sex, but can do a little to contribute to the task of family planning" [5].

For decennia, researchers have recognised the importance of developing less invasive, more reversible and tolerable methods of male contraception ideally with success rates equivalent to those of female contraception. Consequently, pharmaceutical research has continued to improve the substances necessary for this ideal male "pill". In a recent review, Manetti and Honig [6] presented the outcomes of these studies and listed the pros and cons of 16 male hormonal contraceptive options in four different clusters (*testosterone*, *testosterone-progestin combinations*, *testosterone with GnRH analogues and selective androgen receptor modulations*) which have been tested and refined in international studies for over 40 years in various presentations (*injections, oral pill, gel, plasters, implants, etc.*). They concluded that male hormonal contraception (MHC) is reaching the high standard set by the female pill and vasectomy regarding effective prevention of conception, and is as such pharmacologically ready for implementation. Nonetheless, a marketable male pill remains elusive and unavailable for the general public [7]. The reason behind this remains a mystery. According to Manetti and Honig [6], this is due to concerns around long-term effects and male health implications. However surely that would be very unfair considering that the female pill was introduced to the market less than ten years after its development, with refinement taking place alongside its use in practice during which side-effects and health problems became apparent. Does this mean that the image of the man as "Supremensch" and the woman as second-class citizen is still very much alive in the 21<sup>st</sup> century?

On the whole, one does not seem to follow this line of reasoning, since academics mostly refer to the socio-political facets and the underlying psychosocial cultural factors that play a role in the unmarketable pill [7]. It is the latter factors and their involvement in generating the powerful barriers that hinder the production and marketing of this

contraceptive product which form the focus of this article. In addition, ways forward are presented in order to consider current research that is underway to aid progression in MHC implementation.

## Method

A literature search was carried out on the following seven data bases: PsychINFO, ASSIA, Scopus, ScienceDirect, Ingenta, Medline and ISI for the time period 1990–2012. Several combinations of the following search words were used: male pill, male hormonal contraception, MHC, attitudes and psychology. The papers were read and re-read until the most important findings started to emerge, which were subsequently summarised under the following themes: 1. acceptability; 2. trust; 3. fear of side-effects; 4. perceptions of contraceptive responsibility; and 5. fear of losing connotations of masculinity.

## Psychosocial and cultural factors

### Acceptability

A sizeable body of research has focused on attitudes and acceptability of a male contraceptive pill. These studies have either examined the attitudes of those participating in MHC trials [8–11] or asked respondents about the hypothetical concept of a male contraceptive pill being made widely available to the public [12–14]. Both types of studies have yielded largely encouraging results, as revealed in the following sections.

### Hypothetical acceptability

Whilst primarily regarding the hypothetical response, Hoesl et al. [1] carried out a literature research of PubMed publications. They reported on cross cultural surveys, conducted in Scotland, China and South Africa by Anderson and Baird [15] and Martin et al. [16], which showed that the majority of females across these cultures generally accepted the possibility of a male pill, with 87% feeling it would serve as a viable means of contraception. Males also agreed with and accepted the usefulness of a new method of male contraception. However, there was a disparity across the three cultures regarding the form of administration, with Scottish males preferring an oral presentation over implants, whereas the oral option proved the least favourable amongst Chinese males. This is in line with a study conducted by Weston et al. [13], who found similar disagreement regarding the method of administration. Based on a survey comparing seventy-six English speaking fathers born in South-East

Asia or the Indian sub-continent with 116 Australian-born fathers, the study revealed that the former most preferred the two-yearly injected method, compared to the Australians, who preferred the daily oral pill. Interestingly however, the daily oral pill was the second most-favoured method of administration amongst the Asian males, which appears to contradict Hoesl's reported results that showed this to be the least favourable amongst Chinese males. This elucidates the problem of comparing such studies, especially when researchers offer the possibility of different options of administration of this new form of contraception. If all studies into the acceptability of MHC were to present the same options, then a more coherent conclusion could follow. Nevertheless, despite these issues of difference, studies seem to agree upon the general hypothetical acceptability across cultures.

Oudshoorn [17] explained the difference in form of presentation, especially regarding injection, by an east-west divide. She showed that in Western countries, injections are perceived as a painful and frightful "bodily intrusion and internal violation" (p. 216). In the East on the other hand, injections have positive connotations as representing the technological expertise of the West, and are perceived as a powerful tool for delivering drugs into the bloodstream, in turn making a person stronger.

Unfortunately, some studies conducted in England did not look at different forms of presentations either, but did study acceptability in association with gender and type of personal relation. Thus, Brooks [12] examined the views of 115 males in Bristol in the south-west, and found that the contraceptive pill was well accepted, especially amongst males in established relationships. These results were similar to those of Eberhardt et al. [14]. In their age- and gender-matched sample of 110 males and 110 females in the north-east of England, women on the whole had a more positive attitude than men; however, males in a stable sexual relationship were more willing to accept the male pill than those in unstable or casual sexual relationships.

### *Acceptability in clinical trials*

Several studies have looked at acceptability while using MHC in actual clinical trials, in order to further the insight into the advantages and disadvantages of the variant combinations of hormonal substances in contraception, and their different forms of presentation. Amory et al. [18] looked at the acceptability of a male contraceptive administered using a testosterone gel in combination with three-monthly depot-medroxyprogesterone (DMPA) injections. The longitudinal trial by 38 healthy men in America over 24 weeks showed that 50% were satisfied with this method and 45% showed interest in using it, if it was available commercially. Remarkably, a significant interaction was found between current use

of contraception in relationships and satisfaction with the regimen, with participants whose partners were using intra-uterine devices more likely to be dissatisfied with MHC compared to couples using other methods of contraception. In addition, older men were more in favour of this method than younger men.

Merrigiola et al. [8] conducted a randomised controlled trial with 122 Italian men, 75% of them were in stable relationships. One group was given an injectable male contraceptive regimen of norethisterone enanthate and testosterone undecanoate, and a control group received no treatment. Of the fifty men who received the injection, six men harboured complaints regarding the administration method, and stopped the treatment. However, all of the remaining forty-four participants indicated that they rated the injection method highly, and none suggested that the method was unacceptable. Nonetheless, fourteen of the men stated that the injection was the biggest disadvantage, followed by eleven being unhappy with the lack of protection against sexually transmitted infections. This led to the authors concluding that more research into the consideration of alternative administration methods or presentation (oral contraceptives, patches, etc.) is necessary, in order to accommodate the complaints of the tested subjects.

Sjögren and Gottlieb [11] analysed 25 men in Sweden in a one-year trial of testosterone enanthate as a part of a WHO centered study. When interviewing the participants, it emerged that their attitudes towards this method of male contraception was generally positive, with more than a half expressing the opinion that it would offer greater freedom and security as well as a more satisfying sex-life. Once again, however, there were five participants who complained about the method of injection and four showed signs of increased aggression during the trial period. The men's well-being remained constant throughout the trial; although the authors do recommend that there should be further research into or deliberation on the aforementioned increase in aggression and whether this is directly related to the method of administration.

There are practical issues which impact the acceptability of MHC. For one, the time until spermatogenic suppression sets in is relatively long and variable; there is no safe interval from treatment initiation to the cessation of other forms of contraception, which means that there is a risk of contraceptive failure in the initial months after administering MHC [19]. However, this is also the case for vasectomy; thus, in a similar way to that following vasectomy, men need to be told to use additional forms of contraception for the first three to four months after starting MHC. Furthermore, in a small number of men, spermatogenic suppression is not achieved at all [4]. However, universal suppression of sperm output in all men may be an unrealistic expectation,

and thus MHC may not be suitable for a small subgroup (minority) of men [20].

Apart from a delay until the contraceptive starts working, there is also the issue of a delay of fertility return of between three and four months [19–21] once MHC is stopped. Nieschlag [22] suggests that the relatively long delay until spermatogenesis is suppressed, and the relatively long recovery phases seem to be inherent features of MHC, which implies that this type of contraception would be best suited to couples in stable sexual relationships who are committed to long-term family planning.

### Summary

Even though both types of studies have yielded largely positive results regarding acceptability, attitudes towards the possibility of a male contraceptive pill seem to vary across research projects in various cultures, in line with the outcome of a multinational survey [23] which reported an average acceptance rate of 55%. Hence, although there is a majority in favour of MHC, it is somewhat slim and results are largely based on quantitative studies in relatively small sub-samples of cultures. Average acceptance rates do not take into account contextual factors such as culture, type of relationship, or presentation of MHC. Therefore, further exploration is necessary through the inclusion of qualitative studies in a broader cultural setting, examining these contextual factors more closely.

### Trust

Another psychosocial variable which has been studied in relation to the male pill is trust. Would women trust their partners to use a male pill efficiently, and would men trust themselves? Glasier et al. [24] researched the attitudes of 1,894 women in Scotland (450), China (900) and South Africa (544), and found that only 36 women (2%) believed that they would not trust their partners, which threatens the idea that new forms of male contraception would not be successful for reasons of trust. This is contradictory to the findings of Eberhardt et al. [14], who found, in their aforementioned sample of men and women in the north-east of England, that women had less trust that men would use the male pill effectively than men themselves, despite there also being a lack of confidence in its effective use amongst these men, especially in casual relationships. Their results also revealed that being female and having trust in men's effective use of the male pill reliably predicted a positive attitude, while being male, being involved in casual sexual relationships or in no relationship, and having low trust in its effective use each reliably predicted a negative attitude. This might present a potential barrier towards its uptake, once being made available to the public. Although women's

concerns may not be surprising, considering that the outcome of a man's contraceptive failure will be borne by the female partner [7], the exact reasons for this lack of trust are unclear.

Oudshoorn [17] demonstrated via a critical analysis of a WHO press release and articles in several major newspapers in the Netherlands and Britain, that the media have portrayed users of MHC as unreliable. The images of MHC users constructed by journalists simultaneously contest and reproduce hegemonic cultural representations of masculinity. Oudshoorn argues that these images have served to legitimate the hegemonic view of gender roles, in which both the responsibilities and the risks that come with contraceptive use are delegated to women. Even though the WHO's press release gave the green light for the marketable distribution of the male pill, the journalists considered themselves experts and warped the positive results of three decades of research into negative fabrications: "Whereas the WHO press bulletin tells the story of a very promising, highly effective new male contraceptive in which men are the heroes, the media tell stories in which side-effects and pain are the most important topics, and in which men are portrayed as victims" (p. 200). Oudshoorn [17] used examples such as a headline from 'De Haagse Post': "Women will not Trust Men" (p. 201), even though there was no mention of this in the WHO's press release, and stories from journalistic interviews which were published such as: "Women don't trust men with this, they want to keep it in their own hands. Imagine that you have to control your partner: 'Darling, did you take your injection?' [...] I'm afraid that this is again a feminist victory that is good for nobody" (p. 201).

Academically, a trust-related psychological factor which has been studied by Reis et al. [25] and Eberhardt et al. [14] is self-efficacy, which is a theoretical construct representing the belief that one is capable of making the correct decisions in order to come to the desired outcome. With regard to trust, this means that once a male has the self-belief to take responsibility for the contraception in sexual interaction, he will adhere to the prescriptions of proper use and will at least trust himself to do so. High self-efficacy in heterosexual females has been reported as resulting in more effective use of contraceptives [25]. Furthermore, Eberhardt et al. [14] found that men in stable relationships were more likely to have high self-efficacy and a more positive attitude towards the male pill.

### Fear of side-effects

Another factor shaping the social representation of MHC is the possible side-effects caused by its use. Such concern has been found to potentially affect acceptability and willingness to use MHC. Oudshoorn [17] criticised the construction of standards to assess the side-effects of contraceptives in males

as dependent on the gendered cultural norm regarding acceptability of risks. Rather than looking for a balanced risk-benefit assessment, as it has been carried out for the female equivalent (risks vs. benefits of avoiding pregnancy, abortions, etc.), for the male pill one is looking for zero risk in which men are compared with healthy men. She also emphasised that every drug has side-effects; one must seek to balance these with the positives rather than exhaustively trying to drill them out. Ideally, she promoted a shared risk model, in which both risks and benefits of men and women are looked at. For example, she reported on the men in Ringheim's [26] publication who indicated in their interviews a wish for a male pill to take away the risks that their wives had been burdened with: "My wife taking estrogens was like the shrew that couldn't be tamed. She woke up depressed... and after a period of time I said, 'Honey, it's the pill, stop taking it, I don't care, I'll use condoms, or other forms of birth control, I'll go on the program that my friend is on, but you stop taking the pill right now'" (p.76).

Several studies revealed that respondents have a fear of side-effects. Brooks [12] found that 70% of respondents would not tolerate any side-effects, although their attitudes towards an effective male contraceptive were positive. Similar findings were reported by Weston et al. [13] and Heine mann et al. [23], in that any side-effects caused by methods of male contraception would not be desirable. More recently, in a mixed-method study in the East of England, Walker [27] explored attitudes towards the male pill and found that participants who were unwilling or undecided regarding MHC were more likely to be concerned about potential effects of the male pill on future fertility.

O'Connor, Ferguson and O'Connor [28] carried out two studies within the theoretical model of framing effects in health behaviour [29]. In this model, it is claimed that when a behaviour is seen as involving a certain degree of risk, a loss-frame advantage is observed. For behaviours that are perceived as involving less risk or are considered as safer, a gain-frame advantage is revealed. Considering this, it is evident that the use of a MHC as a prevention behaviour is regarded as more risky than other prevention behaviours (e.g. using sun cream), and so a loss-frame advantage should be observed. O'Connor et al.'s [28] first study, involving a British sample of 46 males and 55 females, examined how risky the two methods of administration of male hormonal contraception (oral pill and injection) were regarded in comparison to other prevention behaviours, such as using a condom and using sun cream. The males reported finding the two forms of hormonal contraception more risky than the women did, yet both men and women perceived condoms as involving less risk than hormonal contraception. Regarding hormonal contraceptives specifically, men saw the injection method to be riskier than the oral pill, whereas women saw no difference in risk between the two. These

data suggest that women are less likely to consider new forms of male contraception as risky, perhaps due to the women's pre-acquaintance with regular use of hormonal contraception, whereas for men it remains a novelty shrouded in mystery.

On a different note, differences in health behaviours (e.g. taking vitamin supplements or going for regular medical checkups) seem to be important in relation to male hormonal contraception: men are known to take less care (as a trait of masculinity [30]) or to overly take care (being scared of any unexpected bodily change such as possible side effects) of their health [14,17]. Eberhardt et al. [14] linked the fear of side effects to the assessment of health behaviours with the hypothesis that the more a person's behaviour is healthy or health-orientated, the more worried the individual will be about possible side-effects. Even though they did find that perceived high self-efficacy was associated with engagement in health related behaviours, there was no such relation with concerns about those effects. They found more support for men's masculine role in that those men who did not show a lot of interest in their health also did not show any enthusiasm for the availability of the male pill. This shows that it is unclear as to whether health consciousness is likely to influence intake of MHC.

### Perceptions of contraceptive responsibility

In the twentieth century, the majority of developments in reproductive medicine have moved from a male to a female-dominated field [17]. For over five decades, women have been using the hormonal contraceptive pill, which, as stated earlier, was introduced after ten years of research. Associated health risks have been reported over the years, such as an increased likelihood of breast cancer, weight gain, vascular thrombosis, heightened blood pressure, etc. Research into the use of the male contraceptive pill has been carried out since the 1970s, and hundreds of trials have been conducted in order to augment the pill's performance in terms of side-effects and risk factors. Changes in family relations, the emancipation of women and changes in male attitudes towards health and well-being are all considered to provide the platform upon which a change in the gender issues of contraceptive responsibility can take place. These social changes have prepared the way for the commercial introduction of MHC. Regardless of over forty years' worth of progressive research and social changes however, there is still no commercially available male contraceptive pill.

Several studies have looked into the attitudes across both genders regarding contraceptive responsibility. Anderson, Kinniburgh and Baird [31] concluded their review by arguing that there is an increasing awareness that men should share contraceptive responsibility. They also argued that it may well be that the recent surge in understanding

reproductive function on a molecular basis will reveal the benefits of MHC and allow men to have more control over the outcome of their fertility in sexual relations. According to Glasier et al. [24] the majority of men responding to a survey, believed that they should be more responsible for contraception than they were. It has also been asserted that a high proportion of men from developed as well as developing countries are prepared to use a hormonal method once it is made available [32]. This shared responsibility was also demonstrated by Oudshoorn [17], who quotes one of the men in Ringheim's study: "If she goes on the pill again there is always the risk, isn't it? And my way of thinking is, once she's taken the risk for a few years, I'll take the risk. Then you halve it." (p. 8 [33]). It is worth noting that similar motivations have been reported to play a role in the decision to undergo vasectomy; however, the procedure is often delayed due to its unfamiliarity and irreversibility [34].

In Glasier et al.'s [24] own study, 994 women who attended family planning clinics were selected from Edinburgh, Shanghai, Hong Kong and Capetown. There were marked differences between the responses from these cities that drove the authors to conclude that at that time, the male pill would be less popular in the far-east than in the West. Additionally, they found that contrary to initial beliefs, the male pill may serve a significant purpose in Africa. However, the authors also concluded that according to the participating women, a higher number of options of contraceptive methods would allow an increased number of men from all countries to take a greater responsibility regarding their sexual health and contraception, suggesting that in order to accommodate the cultural differences in contraceptive preference, it is necessary to develop and distribute more than just one form of MHC administration.

The authors also showed that people's beliefs about contraceptive responsibility had changed considerably from the 1960s to the 1990s. They refer to the American study carried out by Bardwick [35] who interviewed 107 women, of whom 72% stated that they wanted full control of contraceptive responsibility, and 16% preferred the men to take such responsibility, whilst only 12% believed the responsibility should be shared between males and females. However, a telephone survey carried out by the Henry J. Kaiser Family Foundation [36] of 105 Americans thirty years later, found that more than 70% of both men and women indicated that men should play more of a role in contraceptive responsibility.

Other studies [14,37] have found that men in stable sexual relationships in particular, are more willing to take contraceptive responsibility. It is more likely that they will use the male pill once it is available. This may be due to the fact that they have regular sexual intercourse, as men who are not in relationships may on average engage in less sexual activity and may therefore consider the need for regular contra-

ception as unnecessary, preferring condoms as a more suitably practical alternative. Furthermore, men in stable sexual relationships are more likely to be committed to their relationship than those in casual relationships. As it is discussed in the next section, another explanation might be that the masculine stereotype is challenged when men are in a stable sexual relationship: the sensitivity in a "hegemonic male" may surface when awareness of the potential risk of side-effects that their female partner faces becomes clear. Alternatively, it may be the instinctive masculine trait of protecting their female partner that results in the man taking the full contraceptive responsibility.

### **Fear of losing connotations of masculinity**

Another factor that may explain the lack of commercially available MHC is the suggestion that men may not be enthusiastic about its use because of its feminine association. As the pill has been readily available to women for decades now, but there is still no male version, many men – particularly those who consider themselves as stereotypically masculine – will feel that using a form of MHC would threaten their masculinity by performing a role considered feminine in the context of a stable sexual relationship. In addition, an important factor in determining masculinity for men themselves is sexual performance and more significantly fertility. Since the role of MHC will be to decrease or stop the rate of fertility, this again may be perceived by men as threatening the status of traditional, hegemonic masculinity. Concerns around fertility and virility were highlighted in a study by Kalampalikis and Buschini [38], in which 46 semi-structured interviews were carried out with males and females in various sorts of relationships to understand how they constructed the male pill. They concluded that individuals used the female pill to inform their expectations of the advantages and disadvantages of the as yet imaginary male pill. Furthermore, virility was very important to men, as a sign of being manly and potent. MHC was seen as a threat to manhood – which, according to the authors, is possibly the reason why the male pill remains in the sphere of a medical promise rather than a medical reality.

An example of the masculine stereotype has also been shown by Oudshoorn [17]: "We all know that at this stage of time, it's not socially acceptable for men to use male contraception" [32] and "You still get people who would say 'What are you doing that for, can't your wife take the pill or something?' It seems like the abnormal rather than the normal, the idea that the bloke, apart from condoms, would actually take any part of sexual responsibility for contraception, particularly not one which involved needles" [32]. These quotes from qualitative studies are powerful examples of how stereotypes influence male attitudes, with many choosing to reject new forms of male contraception in favour

of safeguarding their masculinity. Interestingly though, as mentioned in the previous section, some males are in favour of sharing responsibility whilst maintaining a masculine disposition. This is mainly evident in cases where a man's female partner complains about side effects, in which case the man will wish to protect his partner and take over the contraceptive role.

Furthermore, due to the recent social changes causing somewhat of a shift from male dominance towards the emancipation of women, many men are starting to openly exhibit traits such as sensitivity in abandoning the hegemonic masculinity that has dominated relationships in the past. As one man in Ringheim's study observed: "I think that men have always had soft sides, gentle sides, nurturing sides, but for a long time they have been repressed. To a certain extent all these norms, morals, and values are raised into prominence because we are precisely in that period of change so people are forced to think about 'Do men have to do things a certain way?' and 'What's a typical male?'" [32].

## Future directions

Research into new forms of male contraception is progressing. Recently, advances in the development of non-hormonal methods have been reported. Mruk [39] and Cheng and Mruk [40] reviewed these developments, examining research into methods such as reversible inhibition of sperm under guidance, contraceptive vaccines, and Ca<sup>++</sup> channel blockers. They concluded that several of the reviewed approaches showed promise, and that with some additional research a safe, effective, reversible and affordable male contraceptive could be brought to the market. The application of a further non-hormonal method, epididymal protease inhibitor, is reviewed by O'Rand et al. [41].

With regards to hormonal methods, a recent study by Nieschlag et al. [42] demonstrated successful use of testosterone undecanoate in men with normal as well as those with subnormal sperm counts; this broadens the range of potential users of MHC. Overall, these developments are encouraging, because they show that, once available, there should be a variety of methods of male contraception for potential users to choose from.

The Teesside Research Group is momentarily committed to carrying out studies to understand how attitudes towards MHC can be changed in men as well as in women. This is achieved by collecting and comparing longitudinal data before and after presenting scenarios of positive responses to MHC at various points: immediate, three months, six months, nine months and one year. If Oudshoorn [17] is correct about the effects on the layperson's attitudes and their relation to negative publicity in the media, outcomes

reflecting positive attitudes which remain over a longer period of time are to be expected.

In further prospective research, the Teesside Research Group will be carrying out qualitative research to elicit individual discourses across various cultures. This entails individual reflections of males and females of different ages and in differing sexual relationships (casual/stable), on the advantages and disadvantages of the introduction of a new male hormonal contraception. The quotes in Ringheim's studies of the 1990s were very powerful and distinct from quantitative outcomes of the WHO studies or the results as presented by the Edinburgh Group [16,24]. A similar interesting revelation of individual accounts is to be expected from Ringheim's studies, especially considering that more than twenty years have passed since they were conducted. If anthropologists and sociologists [43–48] are right that the ideological stance towards gender in families has changed in recent years in that men and women are more willing to share contraceptive responsibility and are less affected by traditional gender-role stereotypes, then a change in expressions of their attitude towards contraception should be noticed.

A third study that the research group are looking into is a content analysis of the changes in press coverage of MHC in the last half-century, which reflects the attitudes of the media and what knowledge or truths they choose to divulge regarding studies that have been conducted. As has been stated before, Oudshoorn [17] believed that the media exhibits their own truth, their own perspective upon issues and this can have a devastating effect upon the subject, via communicating an often "false" or distorted picture to the general public.

More importantly, we need more studies in which different forms of presentation of the MHC are used consistently. As shown in this article, there is an absence of consistency in the various methods, substances and forms of administration used in the studies as a whole, which makes comparison between these virtually impossible. In order to gain a proper understanding of psychosocial and cultural effects upon a new form of male contraception, the studies should employ similar option choices of MHC, and contextualize these in the psychosocial and cultural factors relevant to its acceptability. It may be necessary to develop a framework, or a matrix, in which these major factors are included, which would allow for aggregating the data yielded by research in a number of contexts in a structured way.

Furthermore, it is clear from the aforementioned studies as well as from a study conducted by Naz and Rowan [49] that no single method will be acceptable to all men and women in all cultures, for there is no absolute consensus regarding which form of MHC acts as the most preferable. For this reason, a range of options is necessary to make MHC universally marketable – just as a male presently has

the choice of condoms or vasectomy, so should he have the choice of substances as well as presentation of MHC (injection, oral pill, implant, etc.). As Manetti and Honig [6] have discussed in their review, there are notable differences to be found between cultural populations regarding MHC presentation. For example, the endocrine response to the use of testosterone as a male contraceptive was significantly more effective for Asian than for Caucasian participants. A variation in body fat content has been suggested as one of the explanations for this ethnic difference, but not been examined. Liu, Swerdloff and Wang [20] express their confusion regarding the overall effects of ethnicity regarding the differences in the suppressed sperm output, since variation between Caucasian and Asian men has been revealed in their reviewed studies. For that reason they conclude that it seems unlikely that universal suppression of sperm output in all men can be realistically expected. Hence, in order for there to be a viable means of distributing MHC whilst considerate of difference in preference, more cross-cultural research is needed, with the assumption that this will result in clear culture-specific findings as to “who-wants-what”.

Additionally, an integrated model of psychosocial and cultural factors shaping attitudes towards the male pill is required in order to evaluate the overall psychosocial variation which distinguishes men from each other (e.g. high vs. low self-efficacy, fear of side-effects, cultural socialisation, degree of masculinity, etc.) in their uptake of MHC. Further research should add to existing knowledge in order to be able to facilitate the construction of such a model. Research from a psychological point of view could look at the role of self-efficacy in the context of clinical trials, in order to gain a greater understanding of men’s self-efficacy and whether this will affect efficient use of contraception. In addition, further investigation could lead to tailoring education programmes to take the various levels of men’s self-efficacy into account. From a social point of view, societal norms undermining the acceptability of MHC need to be drawn attention to and questioned, through continued research and dissemination of findings. Such research needs to inform the marketing and promotion of a male contraceptive once it becomes available, since it would help address these norms and tailor the promotion of MHC accordingly.

Finally, a better understanding of such a model would help inform health-promotion campaigns as well as educational programmes which aim to facilitate a more emancipatory approach to family relations regarding choices of contraception. It must be acknowledged that most likely changes in legislation, business practice and public administration will also be required to effect such changes, which in turn would necessitate a shift in societal norms and political decisions. However, health-promotion campaigns provide a potential starting point from which such changes can take place; such campaigns are designed to inform the individual,

thereby allowing them to make an educated choice. Applied to the uptake of MHC, if an increasing number of men choose to use hormonal or non-hormonal male contraceptives, this may gradually stimulate a shift in social norms, thereby making the use of MHC more acceptable.

As Liu and McLachlan [7] emphasise, research and trials have exhausted their worth and the focus should mainly be upon distribution. Marketable forms of MHC should be made available so that research can be transferred to real-life as opposed to clinical trials, in order to refine and develop the ultimate product along the same lines as its female equivalent. This is especially significant because of the effect of randomised control trials using control groups carrying a high-risk of unwanted pregnancies due to the application of a placebo. Since the research has been ongoing for over forty years, there is a high degree of confidence that MHC will be effective, and should therefore be distributed. It is disappointing however, that distribution has yet failed to occur. Although pharmaceutical companies were actively involved in research and development of MHC for some time [17], the major pharmaceutical sponsors of this research have recently withdrawn their support in this area of product development, which has resulted in difficulties in completing the final phases of clinical development [4]. Pharmaceutical companies still have reservations about research and development of MHC, most likely due to the fact that it is difficult to predict how well these products will be accepted by men and, consequently, how profitable they will be [39]. As Wang and Swerdloff [50] state, since MHC is efficient, reversible and well-tolerated for a target population of younger men, it is time for the industry and government to work together to make it commercially available.

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