

## WOMEN'S STRATEGIC USE OF CLOTHING AND MAKE-UP

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### ABSTRACT

*Clothing and make-up signal a wide range of characteristics including age, sex and sexual motivation. The present study examined the change from daywear to clothing/make-up worn in preparation for a 'night out' that would include a visit to a nightclub in over one hundred young women living in the UK. Amounts of flesh exposed were derived from photographs of participants and intensity of make-up products used determined using the 'Methuen handbook of colour'. Results showed marked increases in amounts of flesh exposed, heel heights of shoes, use of a wider range of makeup products and increases in the colour intensity of many of those products, particularly those used on the lips and eyes. It is concluded that the young women in this study prepared themselves for a 'night out' that would include a visit to a nightclub in ways designed to maximise the rich opportunities to attract the attention of potential sexual partners provided by such venues.*

**Keywords:** *clothing, make-up, sexual signalling, women.*

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## INTRODUCTION

Wearing clothes is an important behaviour that has enabled anatomically modern humans to expand into climate zones and niches where thermoregulation issues might otherwise have prevented this (Gilligan, 2010). The production of clothing requires certain pre-adaptations, such as the ability to prepare animal skins for example and to sew (Toups et al, 2006). It has been suggested that one of the reasons Neanderthals did not survive through to the present day was because they mainly relied on biological adaptations to the cold that were useful only up to a point and so could not survive extremes of temperature and/or wind chill beyond that even with the protection afforded by the animal skin capes they may have worn (Collard et al, 2016). Anatomically modern humans were less well biologically adapted to the cold and so relied more on behavioural adaptations, including the manufacture of specialised cold-weather clothing (Gilligan, 2007; Collard et al, 2016). The key feature of clothing in this context is that, like fur or feathers, it provides thermal insulation by trapping a thin layer of air close to the skin.

Estimates of when humans began wearing clothes vary wildly when based on tool evidence. Tools for scraping animal skins for example existed approx. 800 Ka B.P. (Carbonell et al, 1999) but eyed needles were not seen until about 40 Ka B.P. (Delson et al, 2004). More accurate estimates come from the genetic analysis of human lice (*Pediculus humanus*), a species that were once restricted by human hairlessness to the head (Toups et al, 2006). The development of clothing provided a new niche for these parasites however and they now exist as two morphotypes, named on the basis of their niche preference, head lice and clothing lice (Light et al, 2008). This genetic analysis suggests that head lice and clothing lice diverged around 83 Ka B.P. or perhaps even as early as 170 Ka B.P. indicating that this is when humans first started regularly wearing clothes. Interestingly the earlier estimate corresponds to the rapid onset of an ice age “that would have caused cold stress for populations living outside the tropics and could have led to the initial use of clothing by modern humans” (Toups et al, 2006).

In the modern era clothes have developed beyond the merely functional and now provide a rich source of information about the wearer including sex, age, social status, profession, cultural background, sub-culture and even personality (Jackson, 1992; Johnson, 2007). Indeed, it “is impossible to wear clothes without transmitting social signals. Every costume tells a story, often a very subtle one, about its wearer” (Morris, 1977, p.213). In the context of human courtship, clothing can be used to deter unwanted gazes and also to attract those gazes that are wanted (Ross, 2008). Colour can also be an important variable (Roberts et al, 2010) and women's clothing that reveals flesh increases their attractiveness as a short-term partner (Hill et al, 1987). Choice of clothing and ornamentation have also been found to change across the ovulatory cycle (Haselton et al, 2007; Durante, et al, 2008) and hormone levels were found to be associated with clothing type in a nightclub setting, with sheer clothing being correlated with greater motivation for sex (Grammer et al, 2004). These authors also found that females were aware of the signalling functioning of their clothing and “that they in some cases alter their clothing style to match their courtship motivation”.

Further analysis of behaviour in nightclubs has demonstrated the effectiveness of these displays. Hendrie et al (2009) assessed the amount of flesh displayed by women's

clothes, their dancing styles and the number of males that were stimulated to approach. No female in this study displayed less than 10% or more than 50% of their bodies, but those that displayed more than 40% received approximately twice as many male approaches as those that displayed less. A similar effect was seen with breast displays. Dancing was also an important part of each female's display tactics and those that showed 'sexually suggestive' dancing, defined as 'whole body movements incorporating slow rhythmical movements of pelvis and self-touching of upper thigh, hips and/or breast area', received over twice as many male approaches as those women that did not display this dance. Considering these factors together, whilst only 20% of females in this study wore tight fitting clothing that revealed more than 40% of their flesh/50% of their breast area and danced in a sexually suggestive manner, they attracted close to half of all male approaches seen (Hendrie et al, 2009).

With regard to women's use of make-up and cosmetics, evidence suggests that anatomically modern humans used ornamentation and pigments as far back as 70–120 Ka B.P (Marean et al, 2007; d'Errico et al, 2009) whilst Neanderthals were using mineral pigmentation around 50 Ka B.P (Zilhao et al, 2010). In more recent times, the ancient Egyptians used kohl, an antimony-based compound as eye shadow and Henna leaf extract (*Lawsonia inermis*) to colour their nails and hair (Parish & Crissey, 1988). The Romans also used kohl as an eyeliner as well as saffron and in recognition that eyeliner makes eyes look bigger they referred to this as *platyophthalmon*. Roman make-up also included a variety of lead, chalk or clay-based preparations as they favoured pale skin and a range of "poisonous compounds" including cinnabar (red mercuric sulphide) and red lead were used to impart a blush (Olson, 2009). Elizabethan women similarly covered their faces with white lead paint and used berry extract on their cheeks (Parish & Crissey, 1988).

Women have thus been using make-up and cosmetics to enhance their appearance throughout the ages (Gunn, 1973). Those that wear make-up are regarded as more attractive than those that don't (Workman & Johnson, 1991, Mulhern et al, 2003) and this has been found to be associated with ratings of femininity, sexiness (Cox & Glick, 1986) confidence, popularity (Graham & Jouhar, 1983), good health and confidence (Nash et al, 2006).

Make-up and clothing thus have a significant impact on female self-perception and attractiveness to males. Much of these data have however been generated using a rating of models and/or a questionnaire approach and so little is known about whether these findings reflect what happens outside the laboratory. The following study was conducted in an attempt to address this issue and examined the prediction that females would enhance their usual clothing and make-up displays when preparing to visit locations that provided rich opportunities to attract the attention of potential sexual partners, such as nightclubs. To this end, over one hundred females were recruited by opportunity sample on the University of Leeds campus during the daytime. They were then photographed for subsequent analysis of their clothing and asked to provide details about the make-up products they were wearing. These same individuals were then photographed and interviewed by arrangement on a second occasion, a few days later in their own accommodation, immediately prior to going on a 'night-out' that would include a visit to a nightclub.

## METHODS

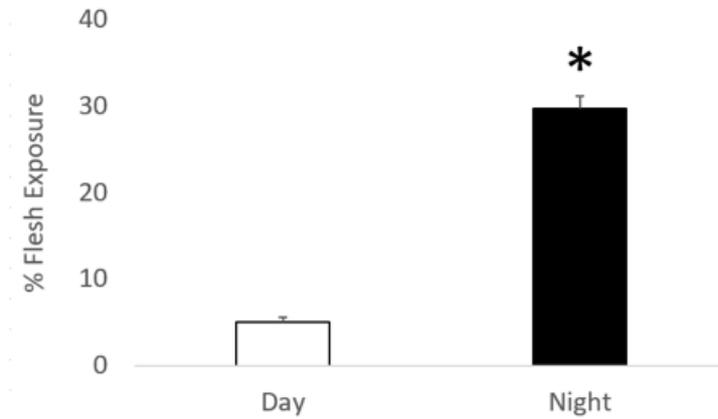
One hundred and nineteen 18-24 year old females (mean age  $20.3 \pm 0.1$ ) were recruited by opportunity sample and photographed on two occasions. The first was in public spaces on the University of Leeds campus during normal office hours ('day'). Those that were clearly dressed for work were not approached and only participants that were dressed casually on this first occasion were included. The second photograph was taken by arrangement a few days later in the participant's own accommodation immediately prior to them going on a 'night out' that would include a visit to a nightclub ('night'). This study was conducted in the early autumn and coats etc were removed prior to photographs being taken. Participants also gave details of their age, eye colour, natural hair and skin colour. Responses about hair colour were made with reference to a Clairol hair colourists' chart (light ash blonde through to black), whilst responses about skin colour were made with reference to the Fitzpatrick scale (Fitzpatrick, 1975). Measurements were also taken of their height (first occasion only) and height of their heels.

Participants were then asked on each occasion if they were wearing any of the following make-up products; Concealer, Foundation, Make up base, Loose powder, Pressed powder, Lipstick, Lip liner, Lip balm, Lip gloss, Eye highlighter/brightener, Eye liner, Eye-brow pencil/shadow, Mascara, False eye lashes, Blusher, Bronzer, Highlighter, Shimmer, and if so, to give the product name and manufacture's description of colour/shade of each.

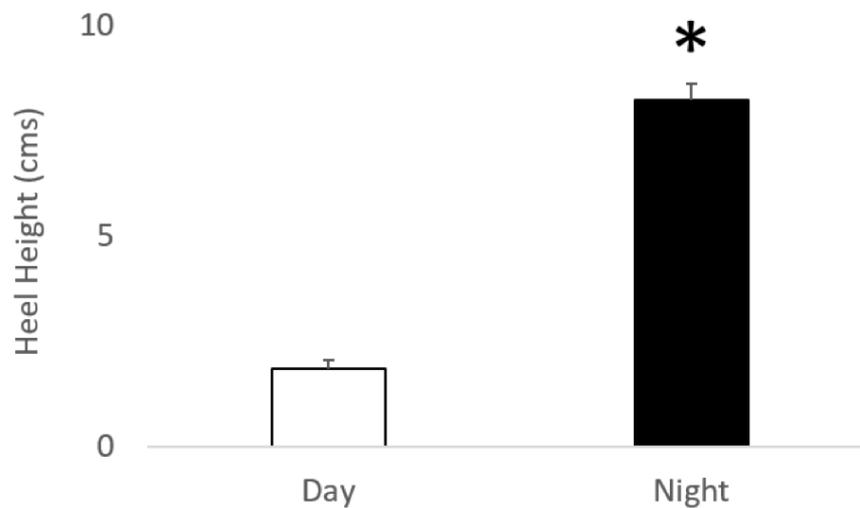
Total areas of flesh exposed by daytime and night-time clothing were derived from the photographs using a standardised square counting method. Colour of make-up products used were obtained from the manufacture's websites and these were compared with the samples given in the 'Methuen handbook of colour' (Kornerup & Wanscher, 1963) to obtain measurements of colour intensity.

## RESULTS

With regard to clothing, analysis revealed significant day/night differences in amount of flesh exposed ( $t(118) = 16.5, p=0.001$ ) and height of heels ( $t(118) = 14.6, p=0.001$ ). Night-time heel height and flesh exposure were also correlated ( $r=0.32, p<0.01$ ) These data are presented in Figure 1 and 2.

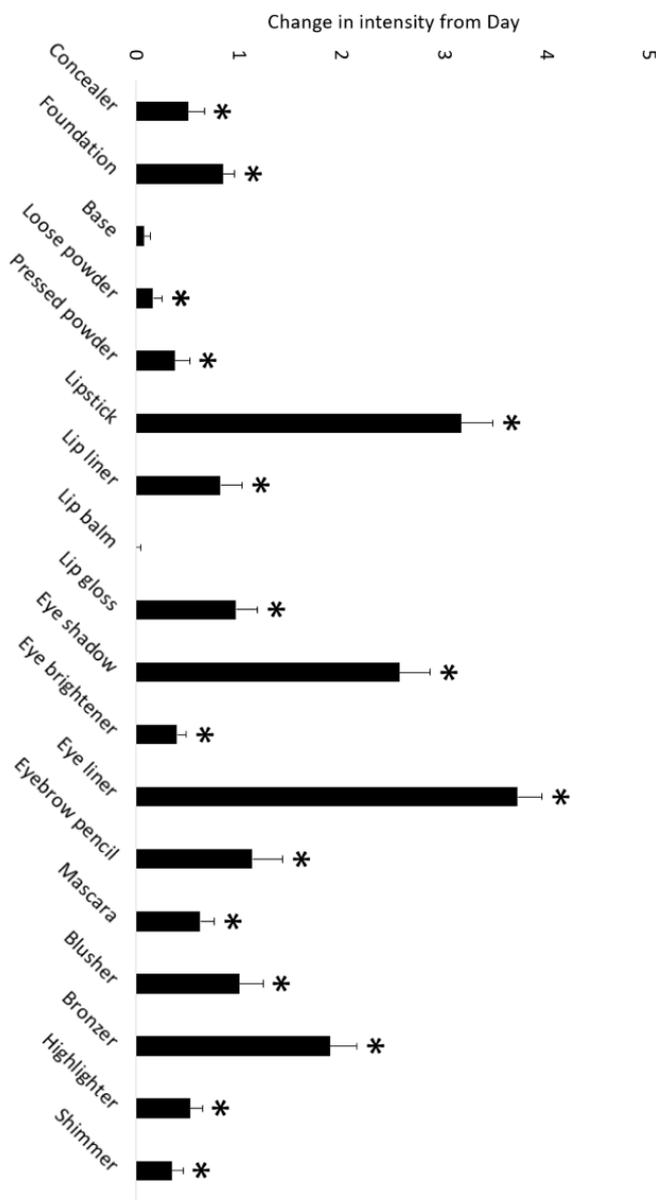


**Figure 1: Amount of flesh shown during the daytime and immediately before going on a 'night out'.** Data are expressed a mean ( $\pm$  SEM) percentage of flesh exposed. 'Day' refers to measurements taken during normal office hours and 'Night' to measurements taken immediately prior to young females going on a 'night out' to a nightclub. There is a marked increase in the amount of flesh exposed from day to night. \* =  $p < 0.01$  from Day. See text for further details.



**Figure 2: Height of heels worn during the day and on a 'night out'.** Data are expressed a mean ( $\pm$  SEM) heel height of shoes worn. 'Day' refers to measurements taken during normal office hours and 'Night' to measurements taken immediately prior to females going to a nightclub. Heels were approximately 6cm higher in the 'Night' condition. \* =  $p < 0.01$  from Day. See text for further details.

With respect to makeup, there were significant day/night differences in the colour intensity of concealer ( $t(118)= 4.43, p= 0.001$ ), foundation ( $t(118)= 6.43, p=0.001$ ), loose powder ( $t(118)= 2.19, p=0.02$ ), pressed powder ( $t(118)= 3.33, p=0.001$ ), lipstick ( $t(118)= 10.01, p=0.001$ ), lip liner ( $t(118)= 4.33, p=0.001$ ), lip gloss ( $t(118)= 4.61, p=0.001$ ), eye shadow ( $t(118)= 8.93, p=0.001$ ), eye brightener ( $t(118)= 4.58, p=0.001$ ), eye liner ( $t(118)= 10.25, p=0.001$ ), eyebrow pencil ( $t(118)= 5.23, p=0.001$ ), mascara ( $t(118)= 2.91, p=0.004$ ), blusher ( $t(118)= 5.06, p=0.001$ ), bronzer ( $t(118)= 7.23, p=0.001$ ), highlighter ( $t(118)= 4.35, p=0.001$ ) and shimmer ( $t(118)= 3.15, p=0.002$ ). These data are presented in Figure 3.



**Figure 3: Colour intensity of makeup worn by females on a night out.** Data are expressed as mean ( $\pm$  SEM) differences from colour intensity of makeup worn during the day. ‘Night out’ refers to females going to a nightclub. The greatest increases in colour intensities from day to night were seen in lipstick, eye shadow and eye liner. \* =  $p < 0.01$  from Day. See text for further details.

There were also significant day/night differences in the number of females that used these makeup products ( $\chi^2(df=17) = 88.71, p=0.001$ ), which was due to significant increases in use of lip (lipstick, lipliner, lip balm, lip gloss,  $\chi^2(df=3) = 44.46, p=0.001$ ) and eye (eye shadow, eye brightener, eye line, eyebrow pencil, mascara,  $\chi^2(df=4) = 30.59, p=0.001$ ) related products.

## DISCUSSION

This study examined young females' use of clothing and make-up on two different occasions; once during the daytime on the University of Leeds campus (day) and again, in their own accommodation immediately prior to them going on a 'night out' that would include a visit to a nightclub (night). Nightclubs provide rich opportunities for females to attract the attention of potential sexual partners and data showed that women enhance their displays when preparing to visit such locations, with significant increases in the amount of flesh shown, marked increases in the heel height of their shoes, use of a wider range of makeup products and increases in the colour intensity of many of those products, particularly those used on the lips and eyes.

Previous studies have shown that clothing that reveals flesh increases female attractiveness as short-term partners (Hill et al, 1987). In this context, women in nightclubs that wore clothing that revealed more than 40% of their flesh attracted twice as many male approaches as women who revealed less flesh than this (Hendrie et al, 2009). Indeed, the 20% of females that combined this with dancing in a sexually suggestive manner attracted close to half of all male approaches seen in this study. In the present study 18.5% of females wore clothes that exposed more than 40% of their flesh, which corresponds well to the Hendrie et al (2009) figure and this may be a reflection of the proposal that women manipulate their clothing in relation to their sexual motivation in both real (Grammer et al, 2004) or imagined (Durante et al, 2008) nightclubs. The current study also revealed a significant correlation between amount of flesh each woman exposed and the height of the heels they were wearing and so it is clear that shoes also form an important part of a female's display.

Wearing high heels is a skill that needs to be acquired (de Oliveira Pezzan et al, 2011) and prolonged wear can cause 'deleterious and often irreversible biomechanical effects' (Linder & Saltzman, 1998) and so women must perceive the benefits of wearing this type of shoe to be significant. High heels create sharper contours to legs and ankles (Rossi, 1981), increases lumbar lordosis (Dai et al, 2015), which has the effect of accentuating breasts and buttocks and women appear taller. Gait is also affected because of alterations to the natural position of the foot-ankle complex (Cronin, 2014) and stride length is reduced, which is viewed as being more feminine (Morris et al, 2013). Marilyn Munroe famously had one of her 4-inch (10 cm) heels shortened slightly to produce her 'much-imitated bum-wiggle' when walking (Pederson, 2004). Rossi (1981) concludes that 'high heels may well be the most potent aphrodisiac ever concocted'. The 'agony' may not be as great as that suggested by the title of this paper however as many women

report not actually experiencing great pain or discomfort when wearing high heels (Seferin & Van Der Linden, 2012).

With regard to cosmetic use, foundation evens out skin tone and texture, making women appear more youthful, healthy (Fink, et al., 2006; Jones et al, 2004) and attractive (Mulhern et al, 2003). Products that enhance skin tone (e.g. foundation, concealer, loose powder, bronzer and highlighter) tap into the skin being an ornament display (Zahavi, 1975) signalling health/immune status (Stephen et al, 2009) and reproductive condition (Stephen et al, 2011; Ip et al, 2019). Youth and fertility are also signalled by large lips (Gunn et al, 2009) and eyes (Jones et al, 1995) and women have been using cosmetics to enhance the appearance of these areas since ancient times (Gunn, 1973). The use of red lipstick is particularly effective in enhancing female attractiveness as this may mimic signals produced by natural red lip colouration that is, in women, associated with good cardiac/respiratory health, oxygenated blood perfusion and higher oestrogen levels (Stephen and McKeegan, 2010). Lipstick also draws attention to the teeth. Tooth colour, missing teeth, gum disease etc all serve to signal age, developmental history and current disease state and so these too function as an ornament display. In this context, both sexes have been found to pay more attention to the teeth of females than to the teeth of males (Hendrie & Brewer, 2012).

In similar manner, eye-shadow not only has the effect of making eyes look bigger (Parish & Crissey, 1988), it increases the contrast between the 'whites of the eyes' (i.e. the sclera) and the darker surrounding area, which has the effect of making them appear lighter. Sclera are also an important ornament display as they become darker with age and so lighter sclera are a signal of youth and associated fertility (Russell et al, 2014). Sclera colouration also serves to signal ill-health, with yellowness being associated with liver disease (Roche & Kobos, 2004) and redness with a number of different conditions including allergy, general infection or eye disease (Leibowitz, 2000; Murphy et al, 2007). Unsurprisingly, photographs of faces that have had the sclera artificially reddened are rated as being less attractive than the same faces that have not (Provine et al, 2011).

Together these data demonstrate that the increased flesh exposure, high heeled shoes and more colour-intense make-up worn on a night out are displays designed to emphasise the complex array of signals that show health, fertility and sexual motivation that combine to increase a female's attractiveness.

It is concluded therefore that young women in England that enhance their clothing and make-up displays when planning to visit nightclubs, locations that provide rich opportunities to attract the attention of potential sexual partners, are preparing themselves in ways designed to take maximum advantage of those opportunities. It remains to be seen if these same effects are seen in other countries and cultures.

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## COMPLIANCE WITH ETHICAL STANDARDS

The authors declare that they have no conflicts of interest.

## ETHICAL APPROVAL

This study was approved by the Ethics Committee of School of Psychology, University of Leeds, (14-0345) operating in accordance with APA guidelines.

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