



The effects of relationship context and modality on ratings of funniness

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ARTICLE INFO

Article history:

Received 28 June 2012

Received in revised form 26 September 2012

Accepted 4 October 2012

Available online 26 November 2012

Keywords:

Humour
Attractiveness
Mate choice
Sex differences
Context
Modality

ABSTRACT

There is evidence to suggest that humour is an important part of mate choice and that humour may serve as an indicator of genetic quality. The current study investigated how rated funniness from a video clip was related to an individual's attractiveness as a short-term or long-term partner. We additionally tested for the presence of an attractiveness halo effect on humour ratings by comparing ratings of funniness from video clips, audio-only presentations, and photographs. We found that funniness was most strongly correlated with attractiveness for short-term relationships, especially in videos of males. We also found that attractiveness was related to funniness ratings differently across video, audio-only clips, and photographs. Relative to their rated funniness in the audio-only condition, with no appearance cues, attractive individuals were rated as funnier in video clips than less attractive individuals. An additional study demonstrated that ratings of flirtatiousness and funniness were strongly correlated. Perceived similarity between producing humour and flirting may explain why humour is more preferable in a short-term partner as flirting may be seen to signal proceptivity. The effects of attractiveness on humour judgement may also be explained by an association with flirtation as flirting may be most enjoyable when directed by attractive individuals.

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1. Introduction

Humour is a uniquely human quality and an almost ubiquitous aspect of speech (Gervais & Wilson, 2005) despite having no obvious or immediate survival benefits. It has been suggested that humour can facilitate and nurture social bonds (Yip & Martin, 2006) but, paradoxically, it has also been suggested that humour can do the opposite, by helping individuals to exert their own dominance by making others the target of their jokes (Alexander, 1986). The social function of humour will dictate the style of humour being used, be that affiliative or aggressive for example, but, according to the Mating Mind theory, humour may also perform an important function as an indicator of genetic quality, which may enhance one's attractiveness as a mate (Miller, 2000). Li et al. (2009) also suggest that humour is an important aspect of relationships in the Interest Indicator model but, in contrast to Miller (2000), contend that individuals make the effort of producing humour when they are already attracted to a potential mate. A third theory, following the What is Beautiful is Good perspective (Dion, Berscheid, & Walster, 1972), suggests that physical attractiveness increases our ratings of perceived funniness.

Evidently, there is debate on the direction of the relationship between humour and physical attractiveness but not on whether humour is an important aspect of mate choice, for which there is much evidence. Buss (1988) found that both males and females thought

displaying a good sense of humour was an effective tactic in attracting a mate; results which have been echoed in mate preference questionnaire studies (Bressler & Balshine, 2006; McGhee & Shevlin, 2009). Miller (2000) suggested that a good sense of humour is so desirable because the difficulty associated with producing humour, which requires abstract thinking, theory of mind, and highly advanced language skills (Polemini & Reiss, 2006), as well as being creative and intelligent (Miller, 2000), means that humour appears to bear the hallmarks of a costly signal. In other words, the difficulty associated with producing humour enables the humour producer to demonstrate their high genetic quality (Polemini & Reiss, 2006) although this may be influenced by the type of humour being used as sexual humour or memorised jokes may not display genetic quality as ably as spontaneous wit (Bale, Morrison, & Caryl, 2006). This argument has been further bolstered by evidence which suggested that males prefer females to be humour appreciators rather than humour producers (Bressler, Martin, & Balshine, 2006). The biological inequality of the costs of reproduction (Trivers, 1985) suggests that, generally, females should be discerning judges of male quality and this is reflected in many studies on humour. The sexually dimorphic nature of humour production and appreciation is evidenced by preference questionnaires demonstrating that males prefer females to appreciate humour while females prefer males to produce humour (Bressler et al., 2006; Lundy, Tan, & Cunningham, 1998; Wilbur & Campbell, 2011) and findings from lonely hearts advertisements, where men tend to offer a good sense of humour while women tend to seek it (De Backer, Braeckman, & Farinpour, 2008).

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Li et al. (2009) have however questioned this sexual dimorphism as, in their own study on the Interest Indicator model of humour, females suggested that producing humour was an effective way to demonstrate interest in a potential mate, which was indeed correctly interpreted by males as a way of indicating interest. The Interest Indicator model and the Mating Mind theory suggest functions for humour which could potentially exist alongside each other but the theories disagree about whether humour should actively enhance attractiveness. According to the Mating Mind theory, a man's attractiveness should increase following successful humour production, but the Interest Indicator model predicts humour might be attractive only when the listener is interested in them as a mate.

An additional consideration is that humour could also be related to an attractiveness halo effect (Dion et al., 1972), whereby finding someone physically attractive increases how funny you find them. In this way, the causality of the link between humour and attraction is reversed. Such a halo effect, however, may be complex as it is possible that physical attractiveness changes the interpretation of humour, a factor in the Interest Indicator model. Both theories suggest that funniness is an aspirational quality in a male partner but differ in how the perception of funniness interacts with physical attractiveness and gender, and the direction of this relationship forms the first research question of the current study.

We also address different relationship contexts to determine whether humour is more attractive for short-term relationships or long-term relationships. Li et al. (2009) did not find a significant difference between short or long-term relationships for their study on humour but, if funniness is an indicator of genetic quality, it may be more attractive for short-term relationships (Miller, 2000). However, humour does facilitate social bonds (Tisljar & Bereczkei, 2005; Yip & Martin, 2006) and may indicate 'good parent traits' (Greengross & Miller, 2008; Wilbur & Campbell, 2011) therefore funniness may also be an attractive quality in a long-term mate.

1.1. The current research

Previous studies on humour have generally used preference questionnaires to determine the attractiveness of humour. The current novel methodology was chosen to maximise ecological validity, by presenting clips of participants spontaneously producing humour. In the current study, we captured video clips of individuals behaving naturally to camera and had these rated for funniness and attractiveness as both a long-term and short-term partner. We additionally presented photographs and audio-only clips which were rated for the same questions. We hypothesised that humour would be valued more in short-term partners than long-term partners (Miller, 2000), but additionally that this may be subject to a gender difference. In contrast to predicting the same direction for term, the Interest Indicator model predicts that funniness would be equally related to attractiveness in both males and females, whereas the Mating Mind hypothesis predicts that humour production will be rated as a more attractive trait in men than in women. It was also hypothesised that there would be an attractiveness halo effect for humour for both males and females, wherein individuals who are more physically attractive would be rated as funnier than less attractive individuals in the photograph and video conditions.

2. Main study

2.1. Method: stimuli collection

2.1.1. Participants

Forty undergraduate psychology students from the University of Stirling participated to fulfil a course requirement (20 males;

age $M = 20.5$, $SD = 4.6$). These 40 participants will be referred to as the actors.

2.1.2. Procedure

Participants were asked to pose for a photograph looking straight into the camera with a neutral expression. The photographs were cropped to show only the top of the head to the top of the participant's shoulders. Each photograph was captured in front of a standardised grey background in a room with fluorescent lighting. Photographs were captured with a digital camera with a resolution of 2592×1944 pixels and with 24-bit RGB (red, green, and blue) colour encoding. After capturing the photograph, participants were asked the following question; "If you went to a desert island, and could take two out of the three objects, what would you take and what would you do with it?", with the option of choosing chocolate, hairspray, or a plastic bag. Each participant was given one minute to consider their answer and were then filmed answering the question on the same digital camera. Participants were asked to state what object they would bring with them and what they would do with it, and this was framed with the statement that this section of the study was freeform; therefore participants could answer any way they wished. Participants were not instructed to try to be funny nor did they know that humour was the focus of the study. After filming had concluded, participants were debriefed and the videos were analysed for explicit humour use to ensure it was appropriate to be used as stimuli. Nineteen of the actors appeared to intentionally use humour, which was categorised by laughing in a visible and audible way combined with/or making a surreal, sarcastic, or hyperbolic statement.

2.1.3. Stimuli preparation

Participants were instructed that they could speak for as long as they wanted when answering the question. The average length of the videos was 45.3 s ($SD = 16.3$ s) however all videos were edited so that they each lasted 20 s. This was carried out by preferentially trimming silences and the beginning and the ends of videos where the participant had yet to begin their answer or had already finished. Videos which still exceeded 20 s were then edited by removing the last sections of the videos, whilst still allowing for the conclusion of a final sentence so that each video still made sense to a viewer.

2.2. Method: rating stimuli

2.2.1. Participants

Eleven undergraduate psychology students from the University of Stirling participated to fulfil a course requirement (5 male; age $M = 21.5$, $SD = 7.4$). These 11 participants are referred to as the raters.

2.2.2. Procedure

Participants were tested alone in a quiet room. The stimuli presented to raters were the audio soundtrack of the desert island videos, a photograph, and then the desert island video with both picture and sound. All stimuli were presented online on a desktop computer with headphones, with each rater using the same computer and headphones each time. Each rater listened to all 40 audio clips first, then viewed 40 photographs, and finally watched all 40 videos, however the stimuli within each medium was presented randomly. Underneath each object, raters were presented with a 7-point scale which asked them to rate each piece of the stimuli for how funny they thought it was (1 = low, 7 = high) and how attractive they thought each participant was for short-term relationships and long-term relationships. Below this was a short description detailing what was meant by short-term relationships (dates, one-night stands) and long-term relationships (living together, marriage), to ensure all participants were answering with the same understanding. Following the ratings participants were debriefed.

2.2.3. Statistical analyses

All ratings were tested for normality and Kolmogorov–Smirnov tests demonstrated that none of the ratings significantly deviated from a normal distribution. In order to analyse the impact that physical attractiveness had on ratings of funniness, the stimuli were split into two groups based on their attractiveness rating from the photograph. Previous research has demonstrated that females are rated as being higher in attractiveness than males (Andreoni & Petie, 2008) therefore the participants were first split by sex. The mean attractiveness rating was found to be higher for females ($M = 2.86$, $SD = .72$) than for males ($M = 2.55$, $SD = .62$) (though not significantly different, $(t(38) = -1.44, p = .159)$). Males and females were then grouped into a high and low attractiveness group based on their sex's mean attractiveness rating. Once divided into two groups, the mean attractiveness rating for the high group was 3.07 ($SD = .29$) for males and 3.45 ($SD = .45$) for females (which was significantly higher than the males $(t(18) = -2.24, p = .040)$). In the low attractiveness group, the mean rating for males was 2.03 ($SD = .35$) and for females was 2.27 ($SD = .36$). These figures were not significantly different $(t(18) = -1.46, p = .16)$. The difference in mean attractiveness between the high attractiveness ($M = 3.26$, $SD = .42$) and low attractiveness group ($M = 2.15$, $SD = .37$) was significant $(t(38) = 8.94, p < .001)$.

3. Results

3.1. Does physical attractiveness influence ratings of funniness?

A $2 \times 2 \times 2$ repeated measures analysis of variance (ANOVA) was carried out with modality (“audio rating of funniness” and “video rating of funniness”) as the within-participants factor and attractiveness group and sex as the between-participants factors. This revealed that there was no significant effect of modality ($F_{1, 38} = 0.01, p = .947, \eta p^2 < .001$) or sex ($F_{1, 38} = 0.28, p = .598, \eta p^2 = .01$) but there was a significant interaction between attractiveness and modality ($F_{1, 38} = 4.94, p = .032, \eta p^2 = .12$). As Fig. 1 illustrates, this suggests there is a halo effect for attractiveness on funniness ratings as being physically attractive increases ratings of funniness in the video condition compared to the audio condition.

To analyse the impact of attractiveness, the data was split according to high or low attractiveness groupings. An independent samples t -test found that the high attractiveness group were rated as significantly more funny than the low attractiveness group in the photograph condition $(t(38) = 2.91, p = .006)$, supporting the hypothesis that more attractive people would be thought of as being funnier than less attractive people. However, as shown in Fig. 2, the ratings of funniness according to attractiveness were not significantly different for the audio and the video condition.

3.2. Is being funny more attractive for short-term or long-term relationships?

To address whether humour was more attractive for short-term or long-term relationships, the data was split by gender of the actor instead of attractiveness group, as it was anticipated that there would be gender differences (Miller, 2000). Pearson's correlations were used to analyse the relationships between funniness across all three modalities and attractiveness for short and long-term relationships. The modality of most importance was considered to be the audio condition because this data is unlikely to have been strongly affected by the halo effect for visual attractiveness which was demonstrated in the last analysis. Pearson's correlations demonstrated that funniness in males was positively and significantly associated with both short-term attractiveness ($r = .77, p < .001$) and long-term attractiveness ($r = .47, p = .039$). In females, funni-

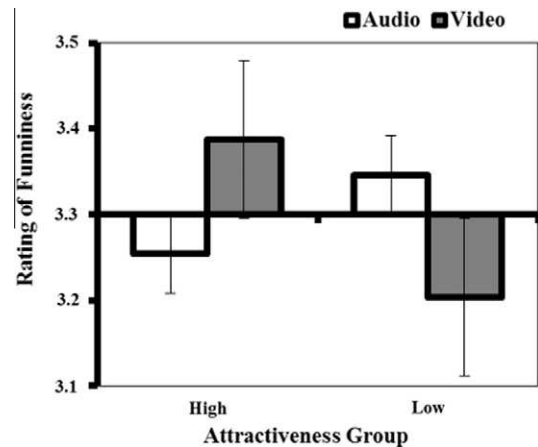


Fig. 1. Mean ratings of funniness for high and low attractiveness group in the audio and video condition.

ness was also positively associated with short-term attractiveness ($r = .52, p = .018$) but funniness was positively but not significantly associated with long-term attractiveness ($r = .26, p = .267$). These data are summarised in Fig. 3 below for comparison.

Across modality, the sexually dimorphic nature of humour becomes apparent as funniness is positively and significantly correlated with attractiveness in males more than in females, however there also appears to be a difference between short-term and long-term attractiveness. In males, funniness was attractive for short-term and long-term relationships, however the difference in effect size prompted the next analysis to determine how much of the difference in attractiveness was due to funniness. To measure this, the ratings of short-term attractiveness were subtracted from the ratings of long-term attractiveness, creating a new variable referred to as “The relative preference as a long-term partner versus short-term partner”. This variable was then correlated with funniness ratings, which revealed a negative and significant relationship in males ($r = -.56, p = .010$). This demonstrated that males who were rated as funnier were also rated as being more attractive for short-term relationships relative to attractiveness for long-term relationships. In females, the correlation was also negative but was not significant ($r = -.16, p = .504$), demonstrating that females rated as funnier were also rated as being more attractive for short-term relationships relative to attractiveness for long-term relationships, although not significantly.

4. Follow-up study

In order to help to interpret the findings from the main-study, a follow-up study was conducted in order to investigate whether the short-term attractiveness of humour is driven by the proposed similarity between flirtatiousness and funniness according to the Interest Indicator theory. It was suggested that the short-term attractiveness of funniness may echo the perceived desire for short-term relationships which is associated with individuals using a playful flirting style, similar to funniness (Hall, Carter, Cody, & Albright, 2010). The follow-up study was designed to investigate if flirtatiousness was rated in a similar way to funniness in the same stimuli previously used and the impact that these ratings had on the attractiveness of different relationship contexts.

4.1. Method

4.1.1. Participants

Raters were eleven undergraduate students from the University of Stirling, participating to fulfil a course requirement (5 males; age $M = 20.2$, $SD = 2.7$).

	Attractiveness Group		<i>T</i> (38)
	High	Low	
Mean Attractiveness:	3.26	2.15	8.94**
Mean Funniness: Audio	3.25	3.35	-0.47
Video	3.39	3.20	1.06
Photo	2.76	2.39	2.91*

Fig. 2. Comparison of funniness ratings between attractiveness groups ** $p < .001$, * $p < .05$.

	Audio		Picture		Video	
	Male	Female	Male	Female	Male	Female
Long-term Attractiveness	.47*	.26	.71**	.26	.54*	.42
Short-term Attractiveness	.74**	.52*	.74**	.35	.48*	.49*

Fig. 3. Comparison of short-term and long-term preferences across modalities ** $p < .001$, * $p < .05$.

4.1.2. Stimuli

The stimuli used are the same as the stimuli used in the Main study.

4.1.3. Procedure

The procedure follows the previous study, except that participants were asked to rate the stimuli for “flirtatiousness”.

4.2. Results

Data from the video condition was used due to the more dynamic nature of flirtatiousness (Morrison, Clark, Gralewski, Campbell, & Penton-Voak, 2010). Data was initially split by sex as it was anticipated that flirtatiousness would be rated differently between the sexes as funniness was, Pearson’s correlations demonstrated that there was a significant positive relationship between the ratings of flirtatiousness and funniness for males ($r = .66$, $p = .002$) and females ($r = .47$, $p = .038$) in the video condition, supporting the hypothesis that perceived flirtatiousness and funniness are related.

A partial correlation was then performed to determine how much of the short-term attractiveness of funniness was related to its perceived similarity to flirtatiousness, therefore perceived flirtatiousness was controlled for in this analysis. After performing this analysis, the relationship between funniness and the relative difference between long-term and short-term attractiveness was no longer significant for males ($r = -.20$, $p = .420$) or females ($r = -.11$, $p = .663$), in the video condition. This finding lends support to the idea that flirtatiousness may be moderating the relationship between long-term versus short-term attractiveness and funniness.

5. Discussion

The current study investigated whether humour is subject to a halo effect, how attractiveness relates to funniness for different relationship contexts and how this relates to sex of the producer. Firstly, the results support the hypothesis that the physical attractiveness of the producer influences the attractiveness of humour,

offering support for Li et al.’s Interest Indicator model (2009) rather than Miller’s Mating Mind model (2000) which suggested that humour should generally enhance attractiveness. In line with Li et al.’s findings, there was an interaction between conditions suggesting that individuals who were higher in attractiveness were rated as being funnier in conditions with visual elements whilst individuals of lower attractiveness were rated as less funny than they were rated in the audio condition, although it is unclear why actors in the low attractiveness group would be less funny in the video condition. It could be speculated that the effect is similar to that in Rall, Greenspan, and Neidich’s (1984) study, where they found that raters preferred unattractive people with averted gaze over direct gaze in photographs, potentially because they do not want attention from unattractive people. It follows that, if raters do not want attention from less attractive people, they may also be less likely to describe less attractive actors as funny in the video condition, as laughter could be seen as a way to reciprocate interest (Stillman & Maner, 2009), which raters in this study may have wanted to avoid. Alternatively, it could be speculated that raters are more attentive to videos of more attractive actors which leads to higher ratings of funniness.

The halo effect of attractiveness on humour found in the current study does seem to demonstrate that humour is an aspirational and desirable quality in a mate if raters tend to ascribe this quality to more attractive individuals, however there was a demonstrable sex difference in the relationship between attractiveness and humour, which is highlighted in the results of the photograph condition. In this condition, there was a strong relationship between attractiveness for long-term and short-term relationships and funniness in males, but not in female actors. This is in line with previous work suggesting that funniness in females is not as attractive as it is in men but it could also suggest that females who are physically attractive are not expected to be funny, whereas attractive males are. This finding seems to suggest that funniness in females may not be an indicator of genetic quality but may perhaps be a cue to another quality; in this study, it was suggested that this quality was flirtatiousness.

The purposeful act of using humour to initiate contact with an attractive person has much in common with research exploring

the effectiveness of chat-up lines (Bale et al., 2006; Cooper, O'Donnell, Caryl, Morrison, & Bale, 2007) and flirting (Frisby, Dillow, Gaughan, & Nordlund, 2011), which are similar to humour use in both behaviour and intention if humour is viewed from the Interest Indicator perspective. Revealing that perceived flirtatiousness and funniness are strongly related and that flirtatiousness appears to be moderating the relationship between funniness and short-term attractiveness gives insight into why humour may be less attractive for long-term relationships. It is suggested that men's flirtatiousness will reduce their attractiveness to females because it nurtures an impression of not being serious or willing to invest in a mate (Frisby et al., 2011) and this appears to be reflected in the behaviour of those who tend to engage in a more playful flirtatious style, as Hall et al. (2010) found those individuals more likely to engage in short-term relationships. This suggests that the attractiveness of humour may be more complex than has been previously speculated as different styles of humour, such as sexual innuendo, may signal proceptivity as opposed to good genes, although Clark, Jack, Morrison, and Penton-Voak (2009) speculate that effective flirtatiousness may also be an honest signal of mate value due to it being difficult to produce.

However, the current study also established that funniness in females was attractive for short-term relationships, which was not hypothesised. In Bressler et al.'s (2006) study, they too found that the sexually dimorphic nature of humour was most apparent when raters judged how attractive funniness was for long-term relationships, whereas no significant difference was found for short-term relationships, which they suggest casts doubt on Miller's model. The same pattern was established in the current study, with less sexually dimorphic patterns appearing in ratings of short-term relationships, but we suggest that this is due to the association between flirtatiousness and funniness and the act of a trade-off (Scheib, 2001), rather than a shortcoming of the model. If a male perceives a funny female to be more flirtatious, it may increase her short-term attractiveness because it is more likely that she will be receptive to his advances (Clark et al., 2009; Morrison et al., 2010). Finding that more attractive females are not expected to be funny in the photograph condition but that funny females are more attractive for short-term relationships in the other conditions seems to suggest that funniness is not an indicator of genetic quality in females as it may be in males, but rather could act as a cue to flirtatiousness or proceptivity for males. With the current study basing these findings on relatively low ratings of physical attractiveness, future studies could test the effect with highly attractive women to see if this produces the same halo effect found in males. We also had relatively small numbers of male and female raters and in future studies more work on potential sex differences in ratings of humour according to sex of producer will prove useful. Likewise, it would be interesting in future studies to examine these effects using both heterosexual and homosexual actors and raters.

In conclusion, our research furthers our understanding of why humour may still be used by females in the context of relationship initiation and adds further support to the argument that humour is sexually dimorphic in nature and perceived to be indicative of genetic quality in males. Further research is warranted to investigate whether the type of humour used can impact on attractiveness ratings, as the current study did not account for this. Whilst it appears that funniness is not such an aspirational quality in a mate for male raters, it could be suggested that humorousness is a quality men think they need to trade-off for attractiveness in women, but this currently remains speculative. The context of this association

may also impact on ratings meaning that, perhaps, when faced with a choice between attractiveness or funniness in different relationship contexts a good sense of humour may prove to be more important in females than has been previously estimated.

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