Analysis of Methods of Providing Anonymity in Facial Photographs; A Randomised Controlled Study

Abstract:

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Clinical images are invaluable in medical teaching and research publications. In the past efforts to conceal patient identity, if any, were limited to a black bar concealing the eyes. However, there is no consensus on this among major journals and publishing houses. This research analyses the effectiveness of blacking out the eyes in facial photographs and evaluates alternative techniques. 126 questionnaires were completed. The average numbers of correct responses out of 30 was 24.64 (82.13%) in the control group, 20.59 (68.63%) in the eyes, 20.42 (68.07%) in the eyes and nose group, and 17.53 (58.43%) in the T-shaped group (eyes, nose, and mouth). The traditional method of covering the eyes does significantly decrease recognition, however it is only as effective as covering the nose and mouth. The more of the face that is covered the less likely it is that the person is recognised. However, there are people who remain identifiable no matter how much of the face is covered. This work highlights the importance of obtaining consent prior to publication as well as attempting to hide identity.

Introduction

Despite clear guidelines from national governing authorities on obtaining consent for publication of photographs, there still exists discrepancy between these guidelines and the practice of some major journals and medical publishing houses. These discrepancies range from the need for consent regardless of content of photographs to the lack of need for consent. This work assesses the effectiveness of different strategies for concealing identity in facial photographs. In 1989, Slue suggested that the black bar merely spoils an image, without making the persons identity less recognisable. In 1998, the BMJ took the lead, insisting on patient consent to publication regardless of the content of the photograph. This issue was further debated in the BMJ in 2004. Guidelines on the content of the photograph have since emerged: using the smallest area of body as possible and using the face only where absolutely necessary. A three-stage consent procedure which includes permission for the use of photographs in the patients notes, in teaching and research, and for publication, but does so separately is in increasingly common use.

In 2004, the GMC and The Irish Medical Council published guidance stating that patients should be informed about any disclosure of their personal information and that this information should be anonymised wherever possible. The International Committee of Medical Journal Editors published guidelines in 2006 stating that patients should give permission to use photographs if there is any chance that they may be identified, advising that all potentially identifiable information is removed before publication and that covering the patients eyes does not protect the patients anonymity. Both the GMC and Irish Medical Council updated their guidelines in 2009, neither gives guidance on the use of photographs for publication. Patients however must be informed about disclosures for purposes they would not reasonably expect. Despite this, discrepancies still exist amongst both medical journals and medical publishing houses about the need for consent and methods of hiding identity.

Methods

A randomised controlled trial was performed to assess the different methods of disguising a persons face in a photograph. The study participants were medical students of University College Cork (UCC). Ethical approval was obtained from the Clinical Research Ethics Committee of the Cork Teaching Hospitals (CREC). Each participant was given a questionnaire containing 30 facial photographs. These photographs were sourced on the internet. The majority were well known media personalities, also included were prominent tutors from the medical school. On three of the four sets of questionnaires an attempt to disguise the identity of the individual photographs was included (Figure 1). On the fourth questionnaire there was no disguise attempt. Each medical student was randomly assigned one questionnaire to complete in a specified time frame.

Figure 1: The pictures give an example of a subject with the various methods of concealing identity in place, these are (left to right): Control, Eyes, Nose and mouth and T shape. The graph shows the correct responses for each category.
Results
A total of 126 of 131 questionnaires were returned giving a response rate of 96%. 36 of the returned surveys had no disguise (control group), 32 surveys with the eyes covered (eyes group), 26 surveys with the nose and mouth blacked out (nose and mouth group), and 32 surveys with the eyes, nose and mouth concealed (T-shape). Incomplete surveys were included for analysis; an unanswered question was considered an incorrect answer. The mean number of correct responses out of thirty questions was 24.64 (82.13%) in the control group, 20.59 (68.63%) in the eyes group, 20.42 (68.07%) in the eyes and nose group, and 17.53 (58.43%) in the T-shaped group. Statistical analysis was performed with a two tailed Mann-Whitney U test, with significance set at p<0.05 using Sigma Stat 3.0 statistical package on a personal computer. There was a statistically significant difference in rate of recognition between the control group and each of the methods of disguise (Figure 1). There was also a significant drop in correct responses with the eyes, nose and mouth (T shaped) obscured as compared to the eyes alone (p=0.029) or nose and mouth alone (p=0.008). There was no difference between the eyes group and the nose and mouth group (p=0.56).

Discussion
This study suggests that black bars should be used in addition to patient consent. Blacking out the eyes in order to conceal identity, is only partially effective. While it does reduce the likelihood of a person being recognised, it is by no means comprehensive. Blacking out the nose and mouth is as effective in concealing identity as blacking out the eyes. This could be used as an alternative to the traditional method of disguising a patient in a photograph that is equally effective. Unsurprisingly, the larger the area of the face that is covered, the less likely it is that the subjects will be recognised. Notwithstanding that, more than 55% of our sample was correctly identified when their identity was concealed with a T shape. The use of widely recognised personalities as subjects in the photographs is potentially limited in that they are possibly more likely to remain identifiable and hence induce bias. However it does serve to illustrate the point that some people remain far more recognisable than others. We term these people bad arbiters and suggest that if someone really knows the identity of the person then covering any amount of the face will not hide their identity from them. Conversely, there are people who are good arbiters, whose recognition decreases as their face is gradually covered up. For instance, recognition of Jennifer Lopez fell as her face was covered (80.5% control, 53.1% eyes, 42.3% nose and mouth, and 16% T), whereas a picture of Bill Clinton remained ubiquitously recognisable at 100% no matter what the method of disguise.

Journals, such as the New England Journal of Medicine and the Journal of Plastic, Reconstructive and Aesthetic Surgery only require authors to obtain consent if there is any possibility that a patient may be recognised. Skin images remain identifiable, and rare conditions can be identified by description alone. Bad arbiters in this study suggest that all facial photographs are ultimately identifiable. Patients are more likely to allow for information to be shared if their identity is concealed and they are asked about the use of their information consent procedure should be universally adopted. We suggest that the type of publication should also be specified. Increasingly medical information is on the internet and is possibly more likely to be viewed by the public at large than if the information is restricted by appearing in medical text requiring separate consent images electronically with a layer to disguise the image has the possibility of being removed by the same electronic means by which it was added, compounding the need for consent. Attempts to conceal a patient's identity with black bars are ineffective. Attempts should be made to conceal identity, but paramount is consent, which should be insisted upon and specific for the purpose of the image.

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