

Evaluating if blanking the eyes of individuals effectively ensures anonymity: an ethical dilemma in scientific publications and lectures

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ABSTRACT

Clinicians and lecturers often use clinical photographs of actual patients for teaching purposes, in congress presentations and for scientific publications. It has been customary practice to blank out the eyes on clinical photographs to ensure anonymity. Researchers have become increasingly concerned that merely covering the eyes is not an effective way to conceal identity especially if the photograph is of a person that may be known to the observer. This study blanked out the eyes of 15 photographs of staff members and well-known public figures as per routine practice in maintaining anonymity. The images were presented to dental students in the final two years of their study, and they were asked to try and identify the individuals. The students were then shown the same images in a different order with no blanked-out eyes and again asked to identify the people. Students were advised that spelling of names was not important. The results were analysed using descriptive statistics to determine the number of correct answers per illustration and in total for both the blanked out and unaltered series of photographs. The results revealed that despite the eyes being blanked out, 75% of the students were able to identify the same number of faces in both series, 21% only had 1 image they could not identify in the blanked-out images, and 4% misidentified 2 images. This study confirmed the suspicion that mere blanking out the eyes of an image is ineffectual in ensuring anonymity. It is also evident that most journals are aware of this limitation and are insisting on confirmation of consent before publishing facial photographs. However, the authors suggest that all lecturers, presenters at study groups and organisers of conferences ensure there is a declaration slide included in the presentation, in which they assure the audience they have gained consent from the respective subjects in their presentations.

INTRODUCTION

Publishing photographs of patients' faces in journal articles, or their use for teaching purposes is a challenging ethical issue.¹ Not only does it require a fully informed and comprehensive consent process, but patients, clinicians, researchers and journal editors need to be aware that if any identifiable images or data are shared, they may become widely disseminated, and available to the broader public, opening it up to potential abuse. In disciplines involving the head and neck area, it is

necessary to show patient faces to illustrate treatment outcomes.¹ It is common practice in dentistry and medicine, forensic science, legal cases, journalism, social media, or other situations where one wants to maintain the anonymity of an individual, to blank out their eyes. Despite that practice, it has been noted by many authors and journal editors that merely covering the eyes of an individual will not conceal their identity. It speaks to the idea that understanding or "seeing" someone isn't just about physical sight and explores how a person can still be "seen" by drawing on psychological, physiological, and social perspectives. We can "see" a person through many different aspects including other physical features, their actions, words, energy, situation and setting. This paper aimed to investigate how easy it is for an observer to identify a person despite the eyes being blocked out. The results may reveal if further and more refined methods of ensuring anonymity are needed when using patient photographs.

LITERATURE REVIEW

In a previous paper by the authors² the concept of human recognition, and the role of facial features, especially the eyes is discussed. It explored the more complex processes involved that extend beyond visual processing alone, and postulated that even if a person's eyes are covered, it is still possible for an observer to identify them based on a myriad of other interconnected features.² These include cognitive recognition and the brain's capacity for "multimodal integration" which allows for the blending of information from multiple senses. Tactile and kinetic cues such as a person's gait, gestures and mannerisms are also distinctive means of recognition.³ Other non-visual identifiers include voice, pitch, tone, cadence, and rhythm, as well as social environment and context.⁴

Facial photography presents a unique ethical dilemma, as faces are difficult to de-identify if one wants to use patient photographs for teaching, at conferences, in publications, as illustration for other patients, or even for advertising purposes.⁵ Blanking out of the eyes alone is no guarantee that a person's identity will be protected as there are so many other individualising features that the brain may process.⁶ There are several ethical and legal

issues to consider when patient photographs are being used. In addition to applying all possible measures to anonymise the illustrations, there is a crucial need for a more robust and fully informed consent process. The 4 key elements of consent must be met, namely voluntariness, decision capacity, disclosure and documentation of consent. Health care professionals must also take cognisance that patients come from a heterogeneous group regarding educational level and socioeconomic backgrounds.¹ Disclosure must ensure they are able to understand and comprehend all the anticipated uses for their images, the potential consequences of publication, and the possibility that the images could end up on social media platforms, especially if published in open-access media.^{1,7} Roguljic et.al, carried out a more in-depth scoping review in 2022, where they looked into the policies and practices of publishing identifiable photographs from papers published between 1914 and 2020. After screening 15 949 titles, and 98 abstracts, a final total of 30 papers were analysed. In general, there was a wide diversity of practices in publishing identifiable patient photographs despite existing standards and protocols. There was also an unsatisfactory level of knowledge on this issue amongst all stakeholders, including patients, clinicians and publishers. From an ethical aspect, it was found that generally the consent process was not conducted properly, and health professionals did not recognise the importance of obtaining written consent for taking medical photographs. They often considered verbal consent to be sufficient or to even use pictures without any consent as they considered these to be part of their own records. With regards to the use of photographs for publication purposes, both patients and doctors agreed that storage facilities need to maintain confidentiality. Patients preferred to be photographed on an institutional camera as opposed to doctors' personal cameras or smart phones. They all preferred nonidentifiable photographs for all purposes and uses.¹ Generally they all agreed that the conventional method of concealing the eyes was not sufficient to protect patient privacy, but very few suggested better alternatives. When the actual journal policies were examined, it also revealed that there was a diverse range of

requirements regarding the consent process, that consent forms were generally insufficient, and the existing ethical guidelines were not fully implemented. A more serious concern was that patient photographs from open-access journals were found on public web-based platforms. The authors concluded that there is an urgent need to improve standards and processes with regards to obtaining fully informed consent, and to apply more stringent measures to protect the privacy of patients in published articles.¹

Some journals have suggested alternative methods of de-identification such as removing all metadata, cropping of non-essential features, blurring or pixelating the entire face, using silhouette-style or high-contrast settings, shadowing or cloning and pasting over features. However, modern AI technology may make it possible to reverse or override these adjustments and render them ineffectual.³ Mere blanking out of the eyes in patient photographs is unlikely to be sufficient to ensure anonymity. This prompted the current research to explore the ability of observers to recognise and identify people from a series photograph of known acquaintances and public figures, despite the eyes having been covered.

AIM AND OBJECTIVES

The study aimed to investigate if blanking out the eyes is an effective means of ensuring anonymity when using patient photographs.

HYPOTHESIS

The hypothesis is that blanking out the eyes will effectively ensure anonymity of all people in the photographs for all observers.

METHODS

1. A select sample of high impact journals were reviewed to identify the most current and universally accepted guidelines for publishing images of patients faces. High impact and widely recognised journals were consulted as they generally follow shared ethical frameworks developed by international organizations. They set the standards that shape broader norms and often influence smaller journals, leading to much similarity across journals. Furthermore, due to the immense volume of medical and dental journals, those which aligned the most closely to the research topic, scope and field were chosen to provide manageable examples of ethical policies.
2. The research itself took the form of a cross-sectional descriptive statistical / analytical study at the Oral and Dental School of the University of Pretoria. Consenting staff members who have had some form of contact with final year students were approached to have their photographs taken and used in the study (Figures 1, 2 and 3). Additional photographs of popular celebrities, politicians and sports persons were taken from social media sites. All consenting students from the final two years of dentistry were asked to take part, in the study. A sample size of 120 participants was considered sufficient. They were shown a series of 15 photographs consisting of the images of staff members as well as international celebrities, where the eyes had been blanked out. Included in the sample were photographs of the same person with different hairstyles and in a shaven and unshaven state.

Figure 1. Person known to the students in real life, a. Bearded, covered eyes , b. Shaven, visible eyes

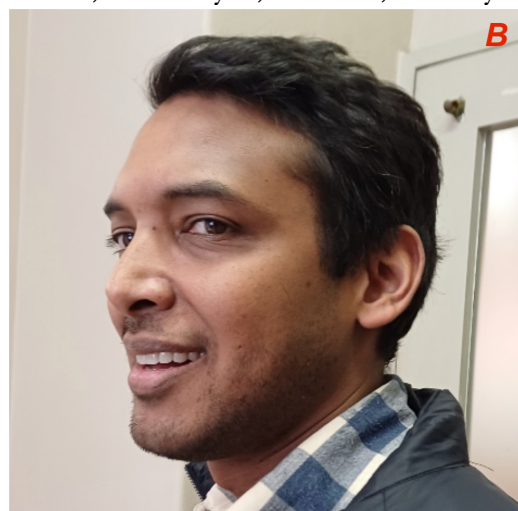
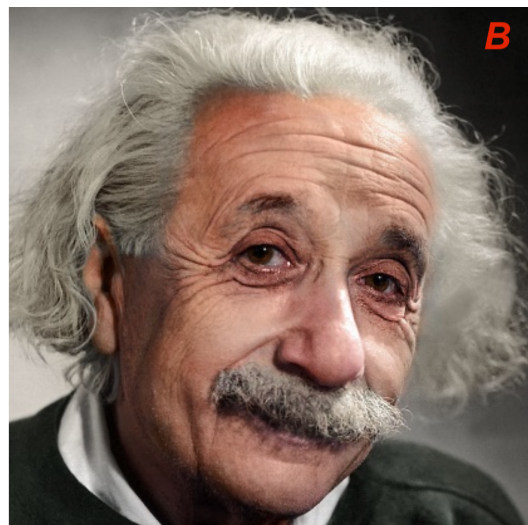
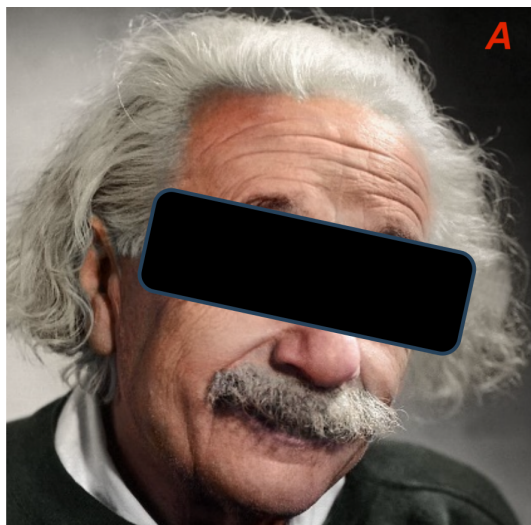


Figure 2. Famous people - Albert Einstein - a. covered eyes. b. visible eyes**Figure 3.** Famous people - Michael Jackson - a. covered eyes. b. visible eyes

They were then shown the same photographs but in a different order and with no blocking out to compare their recognition abilities and account for those persons they did not know at all. Data was analysed to compare the number of correctly identified images between the covered and uncovered examples. Descriptive statistics were used to report the results. The participants were also asked to suggest alternative ways that identity could be concealed.

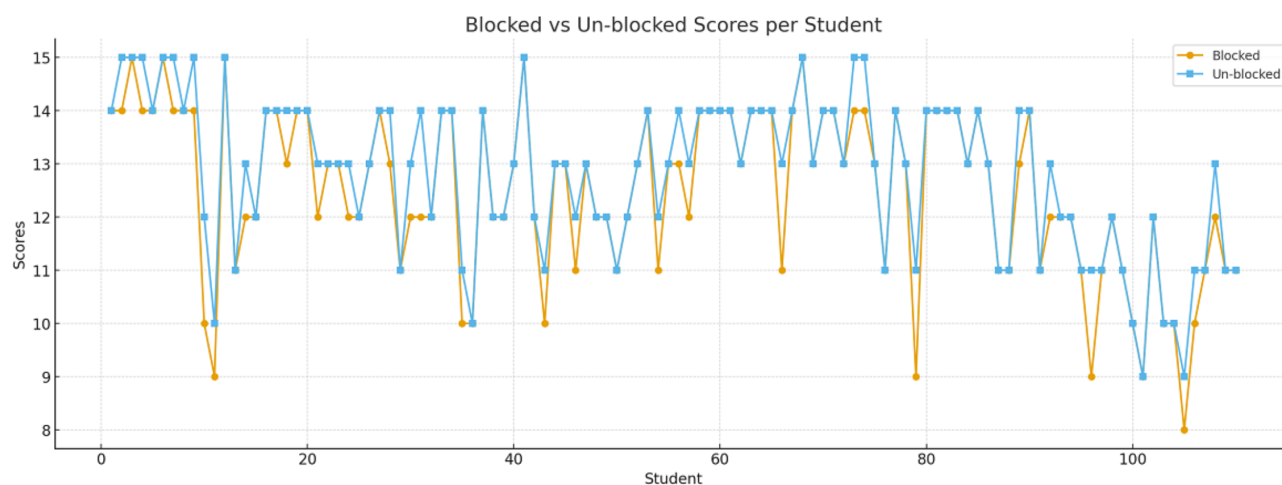
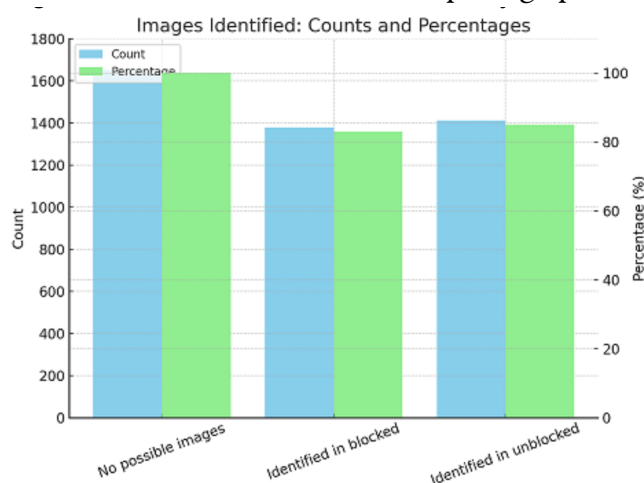
Ethical considerations

The photographs used were taken from consenting staff members in the school, as well as from freely available social media sources. The aim of the study was explained to students during academic sessions, and they were invited to participate. All consenting staff and students

were required to sign a participant informed consent form. Waiver of consent was obtained for the use of images taken from social media sites. All submissions were anonymous. Data will be stored in a secure password protected programme for 10 years as per university requirements.

RESULTS

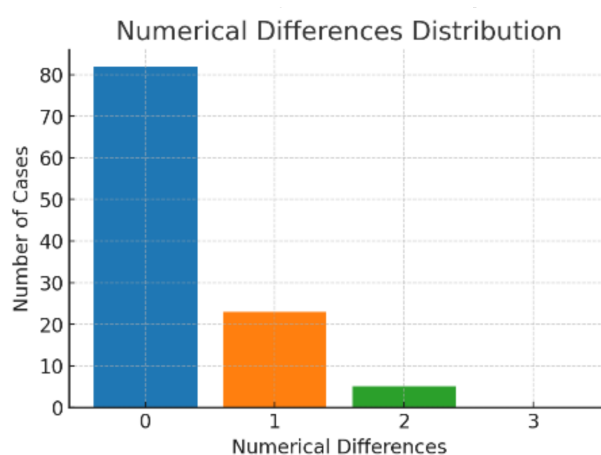
One hundred and twelve students took part in the study. Two score sheets were incorrectly filled in and were excluded leaving a sample size of 110. Results were tabulated according to the number of correct scores for the “anonymised” images, and for the unaltered images (Figure 4). Highest and lowest number of correctly identified images were recorded in Figures 5 and 6.

Figure 4. Number of correct scores in the blocked-out images, unblocked images and difference between both**Figure 5.** Number of correctly identified images in blocked out and unblocked photographs

Some additional comments and suggestions to improve protection of anonymity were provided by participants. Suggestions included: placing dots over the eyes, only showing the mouth, concealing the eyes and the nose, cropping out all unnecessary features, zooming in and taking more close up photos, blurring the eyes, showing only lower half of the face, using black and white photos, using a plain background and having all patients wear a white bib, editing out hair, editing the skin colour and blurring most of the face with mosaics or pixelating.

DISCUSSION

The results of this study clearly revealed that blanking of the eyes in facial photographs is no guarantee of anonymity, yet this has been the most widely used practice in journal publications

Figure 6. Number of correctly identified images in blocked out and unblocked photographs

and congress presentations. The researchers consulted the author guidelines of a selection of high impact journals to establish their current requirements. The relevant sections of these are presented as follows:

The Journal of Prosthodontics⁸ - "*Photographs of People. The Journal of Prosthodontics follows current HIPAA guidelines for the protection of patient/subject privacy. If an individual pictured in a digital image or photograph can be identified, his or her permission is required to publish the image. Otherwise, the image/photo must be altered such that the individual cannot be identified (black bars over eyes, tattoos, scars, etc.). The Journal of Prosthodontics will not publish patient photographs that will in any way allow the patient to be identified unless the patient has given their express consent*".

The Journal of Forensic Odonto-Stomatology (JFOS)⁹ - Tables, photographs, and illustrations: *"All photographs need to be of high resolution: image files at least 6cm wide and 300 dpi, JPEG. Authors should have WRITTEN PERMISSION to use illustrations that may identify human subjects or to disclose sensitive personal information about identifiable persons".*⁹

The International Journal of Forensic Odontology¹⁰ - *"If photographs of individuals are used, their pictures must be accompanied by written permission to use the photograph".*¹⁰

Journal of the Colleges of Medicine South Africa¹¹ - Ethical considerations: *"Papers based on a case study that involves the treatment of humans must adhere to the Declaration of Helsinki on Ethical Principles for Medical Research Involving Human Subjects. Case series must have the consent of the patient(s) or waiver of consent approved by an ethics committee. Where individual human subjects or case studies are discussed, e.g. as in medicine, psychology, criminology, books/journals should protect confidentiality and should not permit publication of items that might upset or harm participants/subjects, or breach confidentiality of, for example, the doctor-patient relationship. AOSIS will not publish individual information and identifiable images from patients/human subjects. We will also require explicit consent from any patients described in case studies or shown in photographs".*¹¹

Nature¹² - Publishing images from human research participants. *"When publishing identifiable images from human research participants in Nature Portfolio journals, authors include a statement in the published paper affirming that they have obtained informed consent for publication of the images. All reasonable measures must be taken to protect patient anonymity. Black bars over the eyes are not acceptable means of anonymization. Images without appropriate consent will be removed from publication".*¹²

Forensic Science International¹³ - Informed consent and patient details. *"Authors must document in the manuscript that ethics committee approval and informed consent have been obtained for studies involving patients or volunteers (including organ/tissue donors). Key guidelines: Appropriate consents, permissions and releases must be obtained if case details, personal information and images of patients or any other individuals are included in a publication, even if anonymized. Patient and research subjects' names, initials, hospital or social security numbers, dates of birth or any other personal or identifying information*

*should never be used, even where consent has been provided".*¹³

Although not formally documented, currently it is a strict requirement in scholarly journals that eyes and facial features be obscured to protect individual identity. This practice aligns with established ethical protocols. However, covering eyes or obscuring facial features may appease clinicians and publishers that the authors have tried to ensure anonymity, but in reality, it is ineffectual.

Medical law and ethics aim to protect patient privacy, confidentiality and dignity. Facial photographs can contain highly identifiable information especially if it includes a full face, or has distinctive features such as scars, tattoos, facial asymmetry, characteristic nose or lip anatomy, distinguishing skin tones, or any other unique traits that could reveal the person's identity. Even partial images can allow for identification if combined with other information such as background clues or settings. Therefore, any use of photographs requires strict safeguards and adherence to core ethical principles. Autonomy dictates that patients have the right to control how their personal information and images will be used; confidentiality must protect all information obtained during treatment; the right to dignity and privacy should protect them from exposure to embarrassment or harm; and beneficence and non-maleficence must ensure that the scientific benefits outweigh potential harm.

This research highlights the ethical and legal need to ensure a more robust and comprehensive informed consent process whenever clinicians need to take photographs of patients. Not only do they need to know the exact intended uses of their images (lecture, conference, teaching, publication, advertising), and where they will be used, but they must also be made fully aware that despite blocking out or masking certain features, the chances of them still be recognised are very high. They must also be informed that once published, control over the images is lost and there is a risk that they may become widely and freely available on worldwide internet sites. It would also be prudent to allow the patient to view their anonymised images prior to them being used. Clinicians must realise that blanking out of eyes is not a sufficient guarantee of anonymity. One may argue that one needs to look for a more robust way to anonymise photographs,

but at the same time most journals have strict policies with regards to not accepting any form of “doctoring” as this opens up the opportunity for fraud and deception. In addition, just as certain AI tools can be used to manipulate an image in order to conceal certain features, there are other programmes that can re-insert morphed out facets to re-create a recognisable face. Journals should be required to adhere to the guidelines stipulated by the Committee on Publication Ethics (COPE) that require written patient consent for use of all images; removal of all names and personal data; images only used if scientifically necessary; consent forms to be retained by the authors and institutions; and ethical committee approval for use.¹⁴

International legal frameworks have data protection laws. Patient photographs are considered as personal health data under many of these laws and have to be protected and treated as sensitive personal information that requires explicit consent for use outside of clinical diagnosis and treatment. Unauthorised use of this protected health information can result in legal penalties. In South Africa, healthcare practitioners have to adhere to the Health Professions Council of South Africa (HPCSA) ethical and legal regulations. These state that “express consent must be obtained before publishing case histories

or patient photographs in journals or other scientific media. This is required even if the practitioner believes the patient cannot be identified”. Failure to obtain consent may lead to professional misconduct charges, disciplinary action or civil legal liability.¹⁵

CONCLUSION

This study highlights the need for all clinicians to ensure that they gain fully informed consent from patients before they take clinical photographs. This includes making them aware of all the intended uses for the images, of that fact that a wider than anticipated audience may get to see the photographs and that despite all attempts to conceal their identity, there is a high chance that they may still be recognisable to people who know them. In the absence of a foolproof method of anonymizing images, obtaining informed consent becomes the gold standard, not only in publications but also in presentations. To this end, the authors suggest that all lecturers, presenters at study groups and organisers of conferences ensure there is a declaration slide included in the presentation in which they assure the audience they have gained consent from the respective subjects in their presentations.

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