

Glass slippers and glass cliffs: Fitting in and falling off

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Author Contribution

1. Prof. Nithya Krishnan: conceived original idea based on clinical work; developed survey tool and vignettes used; organised online survey distribution; contributed to data analysis, writing and approval of final version of the paper.
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3. Prof Ala Szczepura: co-developed survey tool and vignettes used; contributed to data analysis, writing and approval of final version of the paper.
4. Mrs Monica Dolton: reviewed survey tool and vignettes used; helped with online survey distribution; reviewed and approved final draft version of the paper.
5. Mrs Sondra Livingston: helped with online survey distribution; reviewed and approved final draft version of the paper.
6. Mr. John Hattersley: set up randomization of the survey; reviewed and approved final draft version of the paper.
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11. Prof. Kathryn Wood: reviewed survey tool and vignettes used; helped with online survey distribution; reviewed and approved final draft version of the paper.
12. Mr Neil Raymond: Analysed quantitative data from survey; contributed to writing and approval of final version of the paper.

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Abstract:

Background: A 'glass-ceiling' effect exists for women in male-dominated professions. Recent studies also show a 'glass-cliff' effect where senior women can more easily fall from positions of leadership. Transplantation remains a male-dominated specialty. This study investigated gender and the perception of adverse clinical incidents in transplantation.

Methods: Web-based survey involving five clinical scenarios which described errors or mistakes with male or female named protagonists. Questionnaires allocated at random. To address unconscious bias, the study was described as examining 'actions following clinical adverse incidents in transplantation'. Each scenario was followed by two closed questions (i) clinical performance rating (ii) selection of action required. Reasoning was invited (open text comments). Responses were analysed using quantitative and qualitative methods.

Results: 191 invitees responded; 134 completed questionnaires. Total responses showed no differences ($P > 0.05$) in performance ratings, although for 'first solo laparoscopic surgery' scenario some indication 'No Action' more likely if surgeon male ($P = 0.056$). Male responses rated female performance as significantly worse ($P = 0.035$) for the laboratory-based scenario. 102 participants provided open text comments. Thematic analysis identified seven themes. 'Acceptable levels of risk' theme demonstrated engendered leadership beliefs i.e. when 'clinical judgement' proved incorrect, males described as 'forceful' but females as 'needing support'. In cases where things went wrong, respondents were more likely to comment females should not have decided to proceed.

Conclusion: While gender may no longer be an overt issue in perceived performance of senior staff in transplantation, respondents' use of language and their choice of words display elements of unconscious (covert) engendered views.

Background:

Over a hundred years ago, an article published about American women in medicine stated that although women had long won a place in all professions which they desired to enter, the majority of people of both sexes still preferred a 'mediocre man doctor' to a first-rate woman doctor (1). A recent editorial in *The Lancet* identified gender equity in science as both a moral and necessary imperative (2). At the same time, a survey of Science, Technology, Engineering and Mathematic (STEM) workplaces in America has identified them as deeply misogynistic (3). Medicine is a STEM discipline where gender balance now exists at undergraduate level, but is not reflected at leadership levels (4). Although there have been substantial changes, the profession still appears to be subject to some forms of gender discrimination (5). Recent analysis demonstrates men still outnumber women at all faculty ranks in top-ranked academic neurology programmes, and this discrepancy increases with advancing rank (6). In neurology, a newer area of medicine, improvement in gender equality is recognized as too slow (7). In transplantation, where surgeons, physicians and clinical scientists work together, there are a disproportionately smaller number of women physicians and surgeons with fewer women in senior positions in these fields (8).

It is thirty years since the 'glass ceiling' was first used to describe gender inequality in higher management (2,4). Many possible contributing factors exist (9 – 12), including an assumption that males are better suited than females for leadership roles (13,14). More recently, discussion has turned to the relatively subtle form of gender discrimination encountered by women who have broken through the glass ceiling (14). The 'glass cliff' effect describes a phenomenon where women's leadership positions typically prove to be more risky and precarious than those of men – like wearing 'glass slippers' on a slippery surface (15). Thus, female leaders may continue to face an uphill battle, being judged harshly for any mistakes that they make, even minor ones, as shown in a recent study (16). It appears that people who have a senior job not normally associated with their gender are placed under closer scrutiny, more likely to be judged severely, seen as less competent and deserving of lower status. In such settings, senior females appear to be more prone to the 'glass cliff' effect than men (17). Meanwhile, men are portrayed as achieving leadership roles more easily by benefiting from the 'glass escalator' (18). To date, there have been no studies looking at the 'glass cliff' effect in transplantation. We therefore undertook a study to explore the degree to which there are engendered differences in how potentially wrong decisions made by senior male and female medical transplant staff are perceived.

Methods:

Study design: The study was a prospective, web-based survey involving five clinical scenarios, presented as vignettes, with a mixture of male and female clinical protagonists. Although the aim was to assess gender differences in perceived leadership roles in transplantation, in order to ensure elimination of any inherent biases in responses, the survey was advertised as research on 'adequate actions to be taken following adverse clinical incidents in transplantation'.

Ethical approval was obtained from West Midlands Research Ethics Committee, U.K and Biomedical and Scientific Research Ethics Committee, University of Warwick, U.K.

Participants: Participants were recruited by advertisements hosted by professional bodies' websites and grouped into five groups; renal patients, medical students, transplant surgeon / physician, others (nurses, allied health professionals and laboratory staff).

Questionnaire survey: Questionnaire 'scenarios' were developed in conjunction with transplant staff, piloted and refined following feedback. Five scenarios were finally selected (Table 1). Two versions of the questionnaire were prepared. Both presented the same scenarios in the same order, with a mixture of male and female protagonist, with gender changed for Set 2 vs. Set 1 (Table 1). All other details about each scenario, such as grade, number of years' experience etc. remained constant. Respondents were randomly assigned at recruitment to one of the two questionnaire versions.

Following a description of each scenario, participants were asked to answer two closed questions:

- 1) Rate the individual's clinical performance using a Likert type score ranging from 1 to 10, where 1 = unacceptable and 10 = exemplary
- 2) Identify what action to recommend based on the clinical performance. Four options were presented: no action; informal action; written report to department; written report to national regulatory body.

Following each scenario, respondents were invited to provide voluntary, open-ended comments on reasoning for their response.

Table 1: Scenario Summaries

Scenario	Summary	Set 1	Set 2
1	Protagonist (male or female) persuades their colleagues to go ahead with a high-risk transplant and then the patient died.	Female protagonist - Dr. Mary Jones	Male protagonist- Dr. John Jones
2	Protagonist (male or female) described as undertaking their first solo laparoscopic surgery for kidney removal from living donor; had to convert to open surgery during procedure due to equipment failure. Patient survived but kidney was discarded.	Male protagonist - Prof. Paul Hoffmann	Female protagonist - Prof. Sophie Hoffmann
3	Protagonist (male or female) described as encountering patient who has urine infection following kidney pancreas transplant, treated with Co- amoxiclav. Patient has a severe allergic reaction & subsequent note check showed allergies to penicillin and co-amoxiclav mentioned in the notes. Patient discharged after Intensive Care Unit (ICU) stay.	Female protagonist - Dr. Marie Herbert	Male protagonist - Dr. Joseph Herbert
4	Protagonist (male or female) described as providing suboptimal patient care by Consultant-on-call leading to deceased donor kidney transplant patient suffering cardiac arrest. Patient survived and kidney function slowly improving.	Male protagonist- Dr. Stephen Davis	Female protagonist- Dr. Susan Davis
5	Protagonist (male or female) described in situation where laboratory carried out test on wrong sample leading to severe transplant rejection. Patient survived, and kidney function improving.	Male protagonist- Dr. David Fisher	Female protagonist- Dr. Laura Fisher

Analysis: The information collected was analysed using quantitative and qualitative methods.

Quantitative: Randomly allocated Sets were compared in terms of gender, age group, ethnicity, country, and occupation. Closed-question responses were compared for Set 1 versus Set 2 and by gender of respondents. Differences between Sets were

identified and tested for significance ($p < 0.05$) using Student's t-tests. Associations between clinical scores and recommended actions were analysed using one way ANOVA.

Qualitative: Open-ended responses were analyzed for content using thematic analysis and carefully cross-referenced to gain a deeper understanding of underlying reasoning behind the choices made (19,20). An inductive coding style was used, following a flexible analysis approach that helped account for any further categories emerging during the coding process (21), adopting elements of a constant comparison approach (22). Data were coded and analyzed for themes, patterns and meanings within the data, until saturation was reached (23, 24). Themes were explored for relationships and sub-categories before organization into a matrix of themes and super-ordinate categories(23).

Results:

Respondents

191 people responded; 57 returned blank questionnaires and were excluded from analyses. Comparison of characteristics of respondents in Sets 1 vs. 2 is provided in Table 2. No significant differences in personal characteristics (gender, ethnicity, age, respondent professional status and country of residence) were observed.

Quantitative analysis

In all scenarios, except 5 ($p = 0.078$), there was a significant ($p < 0.05$) association between the rating of Clinical Performance and Action selected.

Figure 1 shows Clinical Performance Scores for all 5 scenarios, by Set. Analysis of total responses showed no statistically significant differences between Sets (male versus female protagonist) for scenarios 1-5; although in Scenario 2 the observed difference approached statistical significance ($P = 0.056$). In terms of action required, analysis of total responses also indicates that in this scenario respondents were more likely to opt for 'No Action' or 'Informal Action' for a male surgeon and for 'Written Report to Department' or 'Written Report to National Regulatory Body' for a female.

Figure 2 shows Clinical Performance Scores by gender of assessor. In Scenario 5, male respondents rated a female's performance as significantly worse than a male's ($P = 0.035$).

Table 2: Participants Comparison Set1 versus Set2 (N=134)

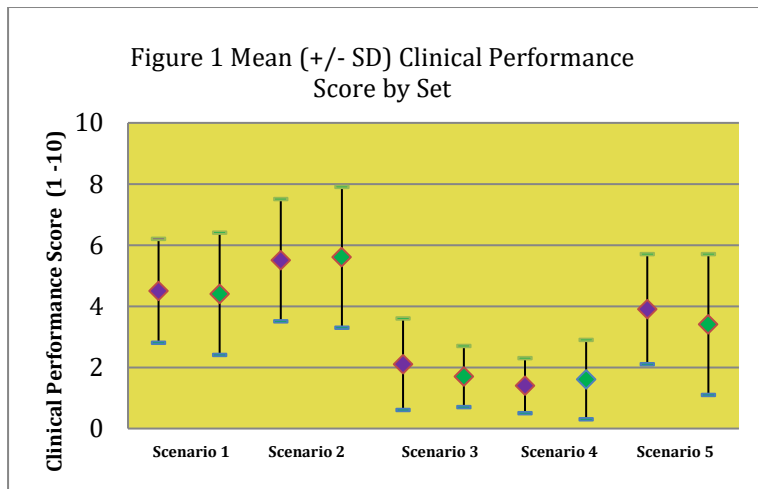
Variable:	Set1 (N=64)	Set2 (N=70)
Gender		
Female	34 (53%)	40 (57%)
Male	30 (47%)	30 (43%)
Ethnicity		
Caucasian	51 (80%)	55 (79%)
All Others *	13 (20%)	15 (21%)
Age group		
20-29	11 (17%)	10 (14%)
30-39	10 (16%)	13 (19%)
40-49	18 (28%)	22 (31%)
50-59	20 (31%)	16 (23%)
60+	5 (8%)	9 (13%)
Country: #		
UK	43 (68%)	56 (80%)
USA	7 (11%)	11 (16%)
All Others##	20 (32%)	14 (20%)
Respondent status:		
Allied health professional	4 (6%)	4 (6%)
Clinical scientist	3 (5)	2 (3%)
Medical Student	9 (14%)	10 (14%)
Other	8 (13%)	11 (16%)
Paediatrician	3 (5%)	1 (1%)
Renal Patient	18 (28%)	23 (33%)
Transplant Physician/Nephrologist	9 (14%)	8 (11%)
Transplant Surgeon	10 (16%)	11 (16%)

* Other Ethnicities: African (n=1), Far East Asian (n=3), IndoAsian (n=10), Latino (n=2), Middle Eastern (n=2), Mixed (n=1), Other (n=9)

Data missing for 1 respondent.

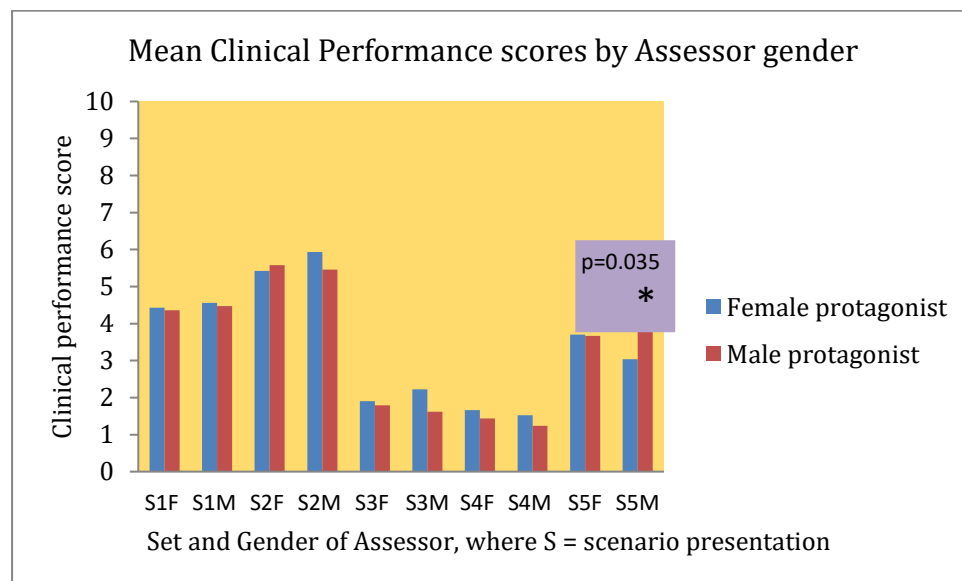
Other Countries: Belgium (n=1), Bermuda (n=1), Brazil (n=1), Canada (n=9), Greece (n=1), India (n=3).

Figure 1: Set1 & Set2 performance scores for scenarios



Legend for Scenarios: ◆ Set1 ◆ Set 2

Figure 2: Mean Performance scores by Gender of Assessor



Qualitative analysis

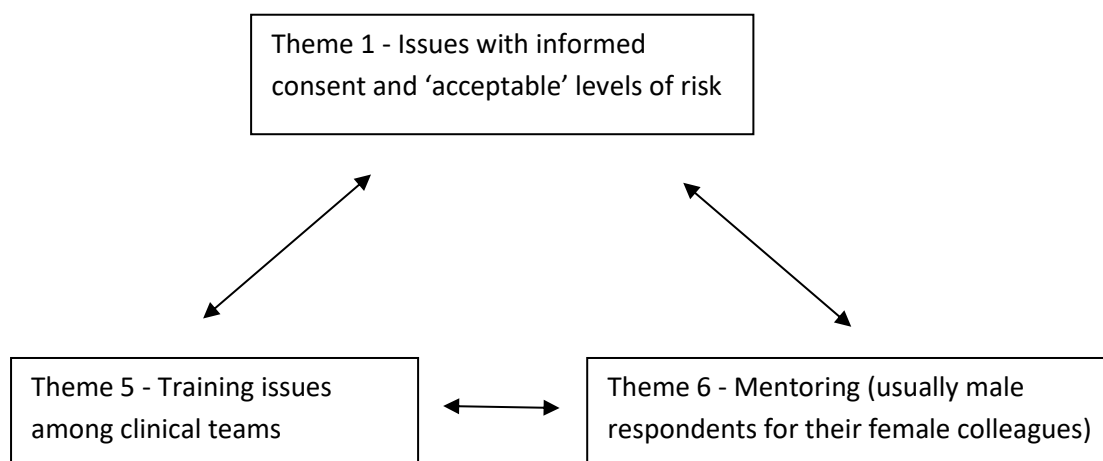
Open-ended comments provided by 102 participants were carefully sifted and searched for commonalities, and contrasting categories. A set of seven super-ordinate themes were identified (Table 3).

Table 3: Super-ordinate themes on qualitative analysis of responses

1. Issues of informed consent and 'acceptable' level of risk
2. Clinical judgement
3. Systems errors or Diffusion of responsibilities
4. Consensus among clinical teams
5. Training issues
6. Mentoring
7. Judgement (i.e. whether appropriate action was taken at the time)

Comments made by respondents for each theme are considered below. Super-ordinate themes such as 'informed consent and 'acceptable' risk' (theme 1), 'training issues' (theme 5) and 'mentoring' (theme 6) are linked (as shown in Figure 3) and are threaded through out. Therefore comments are presented below in the context of these super-ordinate themes. Similarly, the issue of 'judgement' i.e. whether appropriate action was taken at the time' (theme 7) was interlinked with 'clinical judgement (theme 2), thus comments on both are presented together, although each were identified separately.

Figure 3: Inter linkages between themes 1, 5 and 6 where stakes are high and patients and clinicians alike are aware of the 'life and death' nature of issues in transplantation



Theme 1 (Issues of informed consent and 'acceptable' level of risk), Theme 5 (training issues) and Theme 6 (mentoring)

Where adverse events were presented in scenarios, encapsulating the concept of what constituted an 'acceptable' risk, participants often considered such instances as "unfortunate". This is because the attributing rare adverse events, though serious are acceptable risks in transplantation. For example, a male participant commenting on a female protagonist, Dr. Mary Jones (Scenario 1) justified his view saying:

"if patient is well-informed and as the option without transplant is death, the patient too should be allowed to have the choice."

However, further on, this same participant suggests, in relation to a male protagonist, Prof. Paul Hoffmann's actions (Scenario 2), an element of ambivalence towards risk and patient safety:

"additional training in procedure might be warranted before continuing with laparoscopic surgery at this centre," (Male, Allied Health Professional,)

In some cases, it was supposed that a woman had done the best she could to train herself. In Scenario 2, another male participant considered:

"Prof Sophie Hoffmann did the best what she could in this particular situation. It's a complication of the procedure and she had trained herself in the best possible way under a mentor." (Male Transplant surgeon)

While another male participant considered that this female protagonist, Prof. Sophie Hoffmann was unfortunate:

"She has followed an appropriate process to ensure adequate training. It is unfortunate that the first solo case resulted in severe complications but there always has to be a first solo case at some point". (Male transplant surgeon, set2, scenario 2).

Continuing on the theme of risk, male professionals, appear more understanding of female professionals' work where clinical risk was presented. For instance, a male professional viewed the actions of Dr. Mary Jones in Scenario 1 as:

"Although an unfortunate incident, since Dr Mary Jones personally reviews each of the high risk cases and has many years of experience, she likely has a very good idea of acceptable risk." (Male Allied Health Professional)

A specialist male nurse weighs up the ethical risks and opines that the female surgeon

has “*many years of experience with a sound understanding of where risk, in this field, may be viewed as “acceptable”*”. This is supported by another male professional, who believes Dr Mary Jones, “*acted with the best interest of patient in mind, trying to give the patient a chance.*” (Scenario 1, Male Transplant Nephrologist).

Interestingly, a female renal patient in response to Dr. Mary Jones also considers risk as sometimes being acceptable although not in relation to risk of life:

“I think it's good to push boundaries sometimes as otherwise how do you learn but equally it's important not to risk a patient's life just to see if it will work” (Scenario 1, Female, renal patient)

Theme 2 (Clinical judgement) and Theme 7 (Judgement on whether appropriate action was taken at the time)

In terms of clinical judgment, during a complex procedure such as a kidney transplant, where, in addition to the recipient patient, the scarcity of having a kidney for donation, as a resource, becomes an issue to participants when things begin to go wrong. In such a case (Set 2, Scenario 1) participants describe the male protagonist, Dr. John Jones as a ‘*forceful*’ individual, able to lead the more ‘*cautious*’ members of his team, as being a ‘*maverick*’. For example:

“He may be a maverick who ignores his colleagues and as a consequence has poor outcomes. However he may be someone who has cautious colleagues who have previously also advised initially they were unhappy to proceed but have been persuaded to go ahead where outcomes have been universally good”. (Male Paediatrician).

As another male clinician explained, “*I accept a team may be led by one forceful individual but if a team agrees an action then they should [all] be accountable*” (Male Liver Physician).

In similar circumstances a female surgeon, Prof. Sophie Hoffmann may be described as having done the best she could (Scenario 2, Female Renal Patient). Or, alternatively, may be judged more severely by her female peers, as here:

“She shouldn't have carried out this surgery unless fully signed off and competent in undertaking this unsupervised, Ultimately this resulted in a live kidney being wasted, when she started to have problems she should have called for additional help from the trainer if available or a surgeon that operates laparoscopic equipment instead of trying

to fix the problem alone, you should never work outside your capabilities and put your patient at risk of harm” (Scenario 2, Female Professional, Renal Nurse)

Again, for a woman professional, we found responses from female allied health professionals frequently tended to be more judgmental, with the view that:

“This is malpractice and incompetence in that the expert was not present at the first laparoscopic surgery” (Prof. Sophie Hoffmann, Scenario 2, Female Allied Health Professional)

In Scenario 1, a male respondent, who, while professing to understand this situation the female protagonist, Dr. Mary Jones, was in, states that he would write to the department/ medical director, as:

“She decided on her own to proceed even though her own colleagues did not feel she should as did 2 other transplant centres” (Scenario 1, Male Paediatrician).

Whilst understanding the balance of risk in helping critically ill patients, concerns about incurring the loss of a valuable resource such as a viable kidney, were considered by participants. A female renal patient perceptively observes:

“If there had been a chance the patient’s existing illness would have been improved by having a kidney transplant it would have been worth the risk. However the amount of people suffering with renal failure and desperate for a kidney, I believe that this was a poor decision made by the Consultant as this kidney could have been used by another patient who survived and went on to live a long and healthy life.” (Dr Mary Jones Scenario 1, Female Renal Patient)

Theme 3 (Systems errors or Diffusion of responsibility)

Again, where there are errors within systems or moral disengagement, (e.g. Scenarios 3, and 4) female professionals are judged harshly by other women who identify that the professional should have noticed the error (e.g. patient’s history of drug allergy). Within scenario 3, where a female clinician, Dr. Marie Herbert, is the protagonist, a female respondent states that:

“It is unacceptable to prescribe a medication which is documented as a drug allergy, and warrants an incident report especially since it resulted in harm to the patient. That said, the pharmacy should have also put a hard stop on the prescription.....” (Scenario 3, Female Allied Health Professional)

In scenario 4, a female professional describes the sub-optimal care by the woman clinician, Dr Susan Davis, as:

“The doctor has a ‘record’ of poor service. Her director should be aware of the issues to put a corrective action into place based on outcomes.” (Scenario 4, Female Transplant Nurse)

Meanwhile, a male clinician also presented with scenario 3, this time with a male protagonist, Dr. Joseph Herbert, considers that no one particular person was to blame, since others had also not noticed the allergy risk. This offers a clear example of diffusion of responsibility or ‘moral’ disengagement (25). Such internal mechanisms help reduce or explain away any perceived consequences, since other professionals had also not recognized the problem

“Whilst Dr. Joseph Herbert has made an error there are others who also did not recognise the allergy history (nurses involved in administering the drug).” (Scenario 3, Male paediatrician)

Theme 4 (Consensus among clinical teams)

The issue of consensus within the clinical team and leadership is a cross-cutting theme where the ‘forceful’ personality is acceptable if male, but less so for a female clinician leading her team. Where a male hepatologist considers that a clinical error (Dr. John Jones, Scenario 1) is ultimately a team decision.

The blame for the clinical error (Scenario 3) was laid at the female clinician, Dr. Marie Herbert, leading her team. A male respondent viewed this as being a ‘systems’ error with the implication, that as the clinical lead, she needed to explore this further.

“Dr. [Marie] Hebert should have investigated the patient's allergies before ordering the antibiotic. However, the fault lies with the Pharmacy and the nurse administering the antibiotic who should have picked up on the allergy. There is a need to explore the system issues in this case”. (Scenario 3, female protagonist, response from Male Transplant physician).

By comparison, a clear instance of a female professional being judged more **strictly** by other women is provided by a female research nurse who, when presented with two scenarios of errors considered that, for the male protagonist, Dr. Joseph Herbert, she would *“leave this to the relevant people involved at the time”* (Scenario 3). However, the same female professional, a research nurse, when presented with an error

involving a female clinician, Dr. Susan Davis (Scenario 4) stated:

“It would be up to the relevant team member involved but if I was the ward nurse I would contact the director on the phone at the time of the second issue happening”.(Scenario 4,Female, Research Nurse)]

The situation of a female professional being judged more sternly by another female is found again in scenarios 4, and 5 as shown in Table 4, where more examples of Theme 4 are given.

Discussion:

Our study identified no significant differences (at the $P=0.05$ level) in performance ratings by the whole group of respondents for scenarios with male versus female protagonists, although for ‘first solo laparoscopic surgery’ there was some indication that no action was more likely ($P<0.01$) if the surgeon was male. Analysis of only male responses did demonstrate a significantly lower ($P<0.05$) performance rating for the laboratory-based scenario if the Director of the Tissue Typing laboratory was a woman. Analysis of voluntary comments demonstrated a use of language and choice of words that displayed elements of unconscious (covert) bias and existing beliefs. For example, if clinical judgement proved incorrect, males were described as ‘forceful’ but females as ‘needing support’, and when something went wrong, respondents were more likely to comment females should not have decided to proceed.

A recent international study of how women aspiring to leadership can be affected by the ‘glass cliff’ as well as the ‘glass ceiling’ concludes that high-level national strategies will need to be reinforced by real shifts in culture and structures before women and men are equally valued for their leadership in medicine (26). A review of female representation in UK academic medicine similarly concludes that extensive work is still needed over the coming five years, even after introduction of the Athena SWAN (Scientific Women's Academic Network) Charter to improve the culture and chances of women in clinical academia (5).

Table 4: Cross cutting themes : Theme 4 (Consensus among clinical teams)

CROSS CUTTING THEME	EXAMPLE FROM DATA
<p>Scenario 1 (Dr. John Jones, male protagonist) Need for consensus among surgical team linked to consideration of risk from patient's perspective</p>	<p><i>"While the MDT had reservations assuming that the patient was fully consented to the excess risk the MDT finally agreed to go ahead and a surgeon and anaesthetist were prepared to take the patient on. Thus, everyone was on board with the decision and this was a team venture." (Scenario 1, Male Transplant Surgeon.)</i></p>
<p>Scenario 1 (Dr. John Jones, male protagonist) Ambivalence of opinion between reaching consensus among operating team balances against obtaining 'appropriate' consent.</p>	<p><i>"Depends on strengths of feeling and how robust the MDT discussion was. If there was consensus to proceed despite misgivings it's OK with appropriate consent. If it was railroaded through without considering concerns then it is probably unacceptable and would require more robust response." (Scenario 1, Male Transplant Physician and Nephrologist)</i></p>
<p>Presented with systems failures in Scenario 3 (Dr. Joseph Herbert, male protagonist) Male clinician observed that such instances were indeed the team's responsibility:</p>	<p><i>"This type of incident requires an internal investigation and report for senior management. Not only did Dr Herbert not follow the checks and balances in the prescribing of drugs but neither did the rest of the team" (Scenario 3, Male Transplant Surgeon).</i></p>
<p>Female protagonists being judged harshly by other women as seen in Scenarios 4, and 5. Here Dr Susan Davis is seen as being '<i>completely unprofessional</i>' and that the case is judged as '<i>severe</i>' by a Female Student.</p>	<p><i>"I believe Dr. [Susan] Davis's lack of proper action to be completely unprofessional and lazy, and could easily have resulted in the death of the patient. I would report to the national regulatory body because although I would usually report to the director first, I believe this case is so severe that the National body should be made aware as soon as possible."</i> (Scenario 4, Female student)</p>
<p>Here Dr Laura Fisher is found to be judged strictly and 'found wanting' by other women professionals</p>	<p><i>"Dr Fisher should have endured checks were in place to ensure all samples were within a certain time structure and have personally checked these details before releasing any result. Luckily the patient was not caused any harm. As a lead Dr Fisher should ensure staff are full trained and understand what they are doing so things like this are avoided in future!"</i> (Scenario 5, Female Renal Nurse)</p> <p><i>"Dr Fisher would appear to be ultimately responsible for the incident."</i> (Scenario 5, Female Nurse)</p>

Studies have shown a lack of role models and support networks for women in glass cliff scenarios and they are therefore likely to need more help, and of a different nature, to that of their male colleagues (27). Women may also experience a lack of recognised 'officially' sanctioned support with shadow structures indicating that women's networks are less resourceful than men's even in similar positions (28). Research indicates that the odds of women falling off the cliff are less when a woman perceives she has management support (29). Nevertheless, a recent evaluation of Athena SWAN in academic medicine concludes that, paradoxically, such support can reinforce institutional and societal gender inequity (26), possibly due a failure to rapidly assimilate this new information and existing beliefs (30).

Research indicates that successful managers are perceived as possessing characteristics belonging to a global masculine stereotype (31). In contrast, a study of nearly 3,000 managers in the private and public sectors exploring five personality traits of effective leadership suggests women are better suited for leadership than their male colleagues in four out of the five traits, although female leaders may tend to worry more about performing their role (32). Indeed, women may have good reason to be concerned, especially if they are appointed to a precarious glass-cliff position (18). Other research indicates that, although assertive female managers are acknowledged as competent, they are perceived as cold and unlikeable which then become underlying mechanisms for discrimination (29).

Our quantitative analysis could find no statistically significant differences in terms of overall rating of clinical performance of males and females in the five scenarios presented. However, the relatively small sample size may limit observable differences. Interestingly, comparison across the 5 scenarios did identify one instance where male assessors judged a female protagonist significantly more harshly than a male one (scenario 5). This was in the context of a tissue typing laboratory in which female workforce is not unusual as evidenced in a recent study which reports women represent 60% in a pathology group when compared to 30% in surgical groups (8).

Also, in terms of the actions selected for scenario 2 (first solo laparoscopic surgery), for a male protagonist, respondents were more likely to opt for 'no action' or 'informal action' while, for a female more severe actions such as a 'written report to department' or 'written report to national regulatory body' were recommended, although this did not quite reach statistical significance.

Qualitative responses illustrated subtle differences in the perception of male leadership

qualities, the need for mentorship, and training of equally senior female clinicians. In such examples, male respondents described female professionals as being competent, the risk taken as unavoidable; but still recommended mentorship and further training. They also suggested that, despite their expertise, females should be reported to the 'Department' or 'National Regulatory Body' and refrain from performing a procedure until they have undergone further training. We also observed examples of implicit bias (30) where a woman may not judge another female professional by the same standard as a male colleague; this unconscious bias might be due to a hero figure being typically male (31), although the factors governing unconscious bias are complex (33).

Conclusions:

This is the first international large-scale study to explore the existence of a glass cliff effect in transplantation medicine. Our findings confirm, that in this predominantly male medical specialty, quantitative and categorical questions based on hypothetical scenarios, are able to demonstrate only limited gender differences in the rating of male and female clinical performance and the categories of action to be taken following a clinical adverse incident. Furthermore, detailed thematic analysis of participants' open-text comments, provide evidence of a subtle and nuanced use of language demonstrating differences in the perception of adverse incidents, depending on the gender of the protagonist. Such remarks, clearly display embedded elements of an engendered description (29). Our findings suggest that although the 'glass cliff' effect may not be overt in transplantation, associated notions exist that may be subtle and therefore not so easily identified, although it should be possible to tackle these in a modern workplace. A larger survey sample size and inclusion of obligatory, rather than voluntary, comments might have further strengthened the study design. Nevertheless, due to the richness of the data obtained, we consider that the 'glass cliff' effect observed in this study does indeed remain a risk for senior women in transplantation today, particularly in terms of how decisions made under conditions of uncertainty are perceived. In further research, it would also be relevant to explore the views of regulatory bodies and individuals who make decisions about leadership positions.

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