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Abstract

The design of this study is a video-recorded simulated consultation. Its aim is to evaluate the effect of changing seating arrangements and stethoscope visibility on patient enablement and non-verbal behaviour. Twelve simulated consultations with six actor-patients and a 'real' doctor were video recorded. Either the 'real' doctor or actor-patient, blind to the hypothesis sat in large executive office chair during the consult. The patient entered the room afresh for each consult. Consultation quality and outcomes were independently evaluated on three measures: The Patient Enablement Index (PEI), the Leicester Assessment Package (LAP); Non-Verbal Communication (NVC). Both expert reviewers were also blind to the study aim. The results: the doctor's performance was consistent on the LAP score ($P > 0.05$). There was a significant improvement in patient enablement ($p=0.03$) and non-verbal communication ($p=0.003$) when the actor-patients occupied the executive chair. The visibility of the stethoscope did not have a measurable effect on these measures. There was evidence that when patients occupy the larger chair in the consulting room there is significant objective improvement in the measures of patient experience of the meeting.

Keywords

Patient experience, patient-centered care, physician-patient relations, non-verbal communication, consultation, primary care, office configuration, consultation space

Introduction

When doctors consult patients in an office setting the doctor sometimes occupies the larger chair with a high back and arm rests. The patient sits in a lower chair with no arm rests. These seating arrangements may have the effect of underlining the doctor's status as the more important of the two actors in this setting.¹ Similarly, the doctor may choose to have their stethoscope on display or hidden. Previous research suggests that people are more likely to trust an individual when a stethoscope is on display.²

In modern medicine the consult interaction is more akin to a partnership where the doctor advises the patient who is then free to choose whether to follow the advice or to reject all or some of what is said.³ The relationship isn't necessarily one of expert and supplicant. The extent to which the individual seeking advice will value the opinion offered will depend on the extent to which they feel positively predisposed to the 'expert' in the room. The factors that impact this outcome, other than what is said,

include all that affects the senses: sight, hearing, smell, taste and feel.⁴ In a previous report one of the authors, a practicing doctor, noted greater patient satisfaction when the patient was seated in the bigger chair.⁵

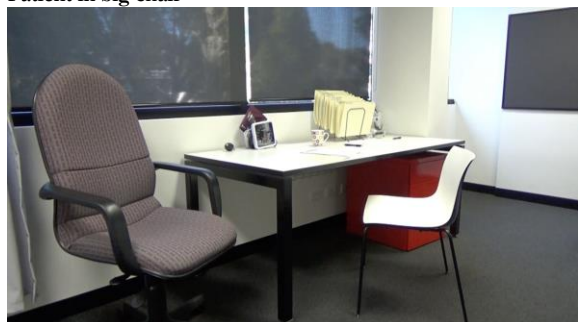
The aim of this study is to explore the impact of the seating arrangements and the visibility of the stethoscope in the doctor's room on key outcomes of the consultation: patient enablement, and non-verbal communication as a proxy measure for satisfaction. The null hypothesis was that these arrangements would have no measurable impact on the outcome of the consultation.

Methods

Simulated consultations were conducted with actors presenting to a doctor with symptoms of a self-limiting illness. The consultations were carried out in a medical consultation room with the participants seated in two different style of chair: a large executive office chair or a smaller chair. The site of the chairs was the same in all

Figure 1. Different seating arrangements used in the simulated consultations

Patient in big chair



Patient in small chair



twelve consultations with the chairs placed around the angle of the desk (Figure1).

The consultations were video recorded. The participating doctor (RN) was a general practitioner (aka Family Physician). The six ‘patients’ were actors trained to present clinical cases at medical student examinations. The actor-patients did not have the medical condition they were portraying at the time of the simulation. Each actor presented to the doctor twice with a different condition and with a different persona. All participants were blind to the hypotheses being tested. The ‘patients’ illness was scripted in advance and each presented two of six conditions: tennis elbow, conjunctivitis, ear ache, hay fever, cough or sore throat. In each case the script described a patient with no red flags to suggest a serious or life limiting illness. For consultations where the stethoscope was visible, the doctor was instructed to wear the stethoscope around his shoulders. The consultations were video recorded and assessed by the patient, an expert with experience in assessing the quality of consultations (CO), and an expert on non-verbal communication (IG) as follows:

1. Patient: The Patient Enablement Index (PEI)⁶
2. Consultation quality: The Leicester Assessment Package (LAP)⁷

Table 1. Study design and allocation of clinical cases and room configurations for simulated consultations. BC= Big chair; SC= Small chair; + S = stethoscope on display; -S = Stethoscope not on display

Clinical Case (Gender)	Room	Actor	Actor initial
conjunctivitis (M)	BC +S	1	C
cough (F)	SC +S	2	M
ear ache (M)	BC -S	3	G
sore throat (M)	SC -S	1	C
tennis elbow (F)	BC -S	2	M
hay fever (M)	SC +S	3	G
hay fever (F)	SC -S	4	Gv
tennis elbow (M)	BC -S	5	Mi
sore throat (F)	SC +S	6	R
ear ache (F)	BC +S	4	Gv
cough (M)	SC +S	5	Mi
conjunctivitis (F)	BC -S	6	R

3. Non-verbal communication: Non-Verbal Communication checklist developed by Park and Park.⁸

The following schema (Table 1) was deployed to assist with the random distribution of scenario, stethoscope visibility and seating arrangements:

Ethics approval was obtained from the University of Notre Dame Australia (approval number 018050S). Descriptive statistics and significance tests were conducted using SPSS V24.

Results

Consultation outcome: The outcome of each consultation was assessed using the three measures: patient enablement (PEI), non-verbal communication (NVC), and consultation consistency (LAP). The scores for each instrument are shown in Table 2.

Scores for each instrument were assessed for normality and statistical significance between groups evaluated using paired t-tests to compare seating arrangements and stethoscope visibility (Tables 3, 4). Both PEI and NVC were improved for patients seated in the big chair. The LAP scores show that consultation consistency was not significantly different between the two groups.

The visibility of the stethoscope did not show a measureable effect for either patient enablement or non-verbal communication. (Table 4).

Non-Verbal Communication. Significant changes in non-verbal communication could be observed in consults

Table 2. Consultation outcomes scored by consultation consistency (LAP score), non-verbal communication (NVC) and patient enablement index (PEI). * LAP scores were adjusted for consultations where domain 5 (anticipatory care) was not challenged.

Clinical Case (Gender)	Actor	Room	LAP	NVC	PEI
conjunctivitis (M)	1	BC +S	52.93*	10	6
cough (F)	2	SC +S	53.73*	9	8
ear ache (M)	3	BC -S	54.51	10	8
sore throat (M)	1	SC -S	54.42	4	3
tennis elbow (F)	2	BC -S	57.08*	12	11
hay fever (M)	3	SC +S	55.83	6	8
hay fever (F)	4	SC -S	51.17	7	6
tennis elbow (M)	5	BC -S	56.38*	11	11
sore throat (F)	6	SC +S	53.82	7	7
ear ache (F)	4	BC +S	53.23	11	7
cough (M)	5	SC +S	54.24	10	10
conjunctivitis (F)	6	BC -S	47.68	11	8

Table 3. Comparison of seating arrangements for simulated consultations between the big chair and little chair using consultation consistency (LAP score), non-verbal communication (NVC) and patient enablement index (PEI)

PEI	Mean score (SD)	Paired T-test
Big chair	8.5 (2.07)	p=0.03 t=-3.0
Small chair	7.0 (2.36)	
NVC	Mean score (SD)	Paired T-test
Big chair	10.83 (0.75)	p=0.003 t=5.5
Small chair	7.17 (2.13)	
LAP	Mean score (SD)	Paired T-test
Big chair	53.64 (3.35)	p=0.09 t=-0.17
Small chair	53.88 (1.52)	

where patients were seated in the big chair. In all cases NVC scores were higher when patients were seated in the big chair. The most obvious example was observed for patient 1 who had an overall NVC score of 4 in the small chair and 10 in the big chair. The NVC checklist scores non-verbal communication in the first minute as well as for the overall consultation. Examples of the non-verbal communication differences between the big and little chair for patient 1s consultation are shown in Table 5.

Discussion

In this simulation when the 'patient' was seated in the larger chair they expressed greater enablement after the consultation. This trend was also documented in their non-verbal communication. These findings suggest a way to boost the outcome of the consultation from the patient perspective without changing anything other than the seating arrangements in the room. In some clinical settings the doctor and the patient occupy the same type of chair however this research suggests that it may be worthwhile

Table 4. Comparison of stethoscope visibility for simulated consultations between the big chair and small chair using consultation consistency (LAP score), non-verbal communication (NVC) and patient enablement index (PEI)

PEI	Mean score	Paired T-test
Stethoscope on display (+S)	7.7 (1.37)	p=0.85 t=-0.02
Stethoscope not on display (-S)	7.8 (3.06)	
NVC	Mean score	Paired T-test
Stethoscope on display (+S)	8.83 (1.94)	p=0.86 t=-0.19
Stethoscope not on display (-S)	9.17 (3.06)	
LAP	Mean score	Paired T-test
Stethoscope on display (+S)	53.97 (1.02)	p= 0.78 t=0.30
Stethoscope not on display (-S)	53.54 (3.52)	

offering the patient a larger chair. The visibility of the stethoscope did not have a similar impact. This was not unexpected as the individual was already introduced to the 'patients' as a doctor.

We postulate that in this experiment the 'patients' in the big chair may have sensed greater empowerment during the meeting and therefore their non-verbal behaviour, which was not scripted, demonstrated genuine feelings during the meeting. This was evidenced particularly in the patients more expressive facial expressions, head nodding, hand gestures and open posture.

Table 5. Examples of the non-verbal communication differences for patient 1. The top panel shows the NVC assessment in the big chair; the bottom panel shows the NVC assessment in the small chair

Patient 1: Big Chair					
Category	Bad	Good	Score Awarded (30 Seconds)	Score Awarded (total)	Reviewer's Comments
Facial Expression	Blank or mismatched	Adequately Expressive	1	1	Expressive face was used to convey information
Eye Contact	More likely when talking	Equal when talking & listening	1	1	Very high levels of eye contact
Affirmative gestures	Infrequent	Adequately frequent	1	1	Used head nods to augment speech and to convey attention and understanding.
Hand gestures	Frequent	Few or none	1	1	Appropriate hand gestures to content of the conversation
Self-touching or unpurposeful movements	Frequent	Few or none	0	0	Some facial touching and self-soothing gestures apparent but reduced as consultation progressed.
Postural change	Yes	No	1	0	Shifted position but became more open and close to GP as consultation progressed
Body Lean	Backward	Neutral or forward	1	1	
Body Position	Closed	Open	1	1	Used chair to be more open towards the GP
Speech rate and voice volume	Not accorded	Accorded	1	1	Confident and clear throughout
Match of voice tone with verbal contents	Flat	Adequate	1	1	Yes
Unnecessary silence, pause of conversation	Frequent	None	1	1	None
Giggle	Frequent	None	1	1	None
TOTAL			11	10	Highly involved in the consultation.

Patient 1: Small Chair					
Category	Bad	Good	Score Awarded (30 seconds)	Score Awarded (total)	Reviewer's Comments
Facial Expression	Blank or mismatched	Adequately Expressive	0	0	Inexpressive throughout – no great emotion or change in emotions shown
Eye Contact	More likely when talking	Equal when talking and listening	0	1	Eye contact fine
Affirmative gestures	Infrequent	Adequately frequent	0	0	Infrequent head nods
Hand gestures	Frequent	Few or none	1	1	Relatively few augmenting gestures
Self-touching or unpurposeful movements	Frequent	Few or none	0	0	Self-touching evident throughout the consult and used hands and arms to hide face at times.
Postural change	Yes	No	1	0	Changes in postures throughout and always oriented away from the GP
Body Lean	Backward	Neutral or forward	0	0	Slumped in chair, leaning away from the GP
Body Position	Closed	Open	0	0	Closed position and use of arms as a barrier to intimacy
Speech rate and voice volume	Not accorded	Accorded	0	0	Low and subdued volume throughout
Match of voice tone with verbal contents	Flat	Adequate	0	0	Flat tone
Unnecessary silence, pause of conversation	Frequent	None	1	1	None
Giggle	Frequent	None	1	1	None
TOTAL			4	4	Subdued during the conflict and seemed very pessimistic about the outcomes of treatment.

A key strength of this simulation was the scope to control for many factors that impact on consultations in practice but also to blind the participants to the hypothesis. No sick patients or patient confidentiality was at risk in the simulation. However, this introduced the greatest limitations of this experiment. The ‘patients’ were not actually sick and therefore assessing the consult as actors in role rather than as ‘real’ patients. Similarly, the doctor was aware that the ‘patients’ were actors and this may have had an impact on his performance even though video recorded simulations have been validated as a way to assess doctor performance.⁹ Whilst we had blinded the participants in the consultation there is a possibility that they became aware of the difference in the seating arrangements albeit that the actors were only involved in two consultations.

Conclusions

Attention to the non-verbal communication in the consultation is important in achieving better outcomes in medicine.¹⁰ There is evidence from this experiment that it may be better for patients to occupy an appreciably larger chair in the consultation. This is associated with greater enablement and more positive engagement with the doctor. Such an outcome renders this simple manoeuvre a powerful low-cost innovation worthy of further investigation or perhaps, given the low risk, tried by doctors in practice. We have no data on whether this would have resulted in greater concordance with medical advice if the patients had actually been sick.

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Appendix

Big chair video: <https://youtu.be/In3RKOxYJYc>

Small chair video: <https://youtu.be/XdELrsKIPqY>