# Do patients' mood and gender affect the way we deliver CBT? An experimental, vignette-based study of the relevance of patient and clinician characteristics

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## Background

Clinicians vary in their delivery of the best psychological treatments available, despite having the necessary tools to implement them appropriately (Waller, 2009). Therapy delivery is influenced by patients' characteristics, such as diagnosis (DiGiorgio et al., 2010) or anxiety level (Meyer et al., 2014). However, clinician characteristics also play a significant role in such delivery (e.g., Cowdrey & Waller, 2015; DiGiorgio et al., 2010; Kosmerly et al., 2015). Previous research has indicated that clinicians who are anxious, older, or more experienced deliver fewer techniques to their patients (e.g., Waller et al., 2012; Wisniewski, Hernandez Hernandez, & Waller, 2018). Also, clinician personality traits such as agreeableness have been associated with poorer treatment outcomes for patients (Delgadillo et al., 2020), whereas clinicians' openness to experience is associated with low treatment fidelity (Peters-Scheffer, Didden, Korzilius & Sturmey, 2013). There is some early indication that clinicians' firmness and empathy also play a role in therapy delivery (McAdam Freud & Waller, in preparation) – namely, less firm clinicians adhere more to talking-based therapies (e.g., counselling/humanistic). In contrast, empathic clinicians adhere more to 'third wave' CBT (more 'eclectic'), whereas less empathic clinicians adhere to 2nd wave CBT (more behavioural).

One of the clinician characteristics that has more evidence about its influence in therapy is their level of anxiety. It has been shown that cognitive behavioural therapists are more likely to avoid the use of more behavioural techniques such as exposure (Deacon & Farrell, 2013), particularly if the clinician is relatively anxious (Waller et al., 2012). Thus, it is possible that this pattern of avoidance can be conceptualised as a safety behaviour, where the clinicians' avoidance of such techniques is reinforced by their own reduction in anxiety (Waller & Turner, 2016). Furthermore, it can be hypothesised that clinician avoidance of specific therapeutic techniques is especially likely if the patient has characteristics that might

raise the therapist's anxiety. Such characteristics are likely to be those that are seen as 'challenging' or as reflecting vulnerability (e.g., expressing anger or anxiety). Clinicians do not appear to perceive such characteristics as being randomly distributed.

The case of patients' gender is particularly noteworthy. Men and women have shown to be treated differently in healthcare settings, with healthcare staff being more likely to attribute traits like 'fragility' or 'emotionality' to their female patients (Bernstein & Kane, 1981; Foss & Sundby, 2003). Other negative qualities have also been attributed to female patients, such as considering them less rational, responsible, compliant, and independent when compared to male patients (Blackstock et al., 2012). Furthermore, healthcare providers have also manifested having less patience for female patients who do not acquiesce to their expectations, as well as having more difficulties to establish boundaries with them (Knight et al., 2019). This evidence indicates the clear role that patients' gender play in the way healthcare providers behave towards them.

It appears that clinicians do not treat all patients identically, even where their psychological problems are the same. Both clinician and patient characteristics seem to play a role in the decisions that clinicians make regarding the therapy techniques implemented. However, most of these studies have relied on correlational designs, and do not support causal conclusions. Therefore, there is a need for experimental confirmation of how patients' and therapists' characteristics influence therapy delivery. This study will consider the delivery of cognitive-behavioural therapy (CBT), given its broad empirical support and clear protocols and procedures (Beck, 2011; DiMauro, Domingues, Fernandez, & Tolin, 2013; Wootton, Bragdon, Steinman, & Tolin, 2015).

The aim of this experimental study is to determine whether patients' characteristics (gender, mood) and clinician characteristics (e.g., age, experience, personality, anxiety) influence the way clinicians deliver therapy. It is hypothesised that clinicians will be less likely to deliver the most 'demanding' CBT techniques to their female patients and to those who express higher levels of situational emotions (anxiety or anger). However, it is also hypothesized that this pattern of CBT technique use will be influenced by clinician

characteristics. Namely, it is expected that clinicians who score higher on anxiety will be less likely to deliver behavioural techniques. Also, it is expected that clinician personality traits will impact therapy delivery, such as agreeable or empathic therapists being more likely to deliver talking techniques, whereas firmer clinicians being more likely to deliver fewer techniques overall.

## Method

### Ethical considerations

This research was approved by the University of Sheffield Ethics Committee. Informed consent was obtained from participants prior their participation on this study.

### Design

This was an experimental, vignette-based study. It evaluated clinicians' likelihood of utilizing several CBT techniques, by manipulating patients' mood and gender in a series of six fictional case vignettes.

### Participants

This study was the result of a collaboration between Mexican and United Kingdom researchers, explaining the origin of the participants. The sample was constituted by clinicians who stated they use or have used CBT with their patients. A sample size calculation made with G*power indicated that, with a medium effect size of 0.25, an error coefficient of 0.05, and a power of 0.80, at least 59 participants would be needed for this study. Participants were drawn from UK and Mexican social media and via websites of universities and psychological associations. Snowball methods were used to distribute the questionnaire, meaning that the exact number of participants approached could not be calculated. Their characteristics are detailed in the Results section.

### Measures and Procedure

The participants completed an online questionnaire using the Qualtrics platform. Initially, they provided information regarding their age, gender, profession, theoretical orientation, training, experience, caseload, and supervision. The core part of the survey consisted of a series of six vignettes. Each depicted a generic case (female or male), who

was experiencing one of three situational emotional states. Thus, the following six vignettes were used: a female patient experiencing situational anxiety; a male patient experiencing situational anxiety; a female patient experiencing situational anger; a male patient experiencing situational anger; a control (calm) female patient; and a control (calm) male patient (see Supplementary material A for the full set of vignettes). Each participant responded to all six vignettes. The vignettes were developed according to the clinical experience of the authors, in order to confirm that they depicted a plausible clinical scenario.

Clinicians were provided with a list of techniques commonly utilized in CBT (Cowdrey & Waller, 2015; Westbrook, Kennerley, & Kirk, 2007). As shown in Table 1, these techniques were grouped into three main categories: talking-based techniques; change-oriented techniques; and Exposure (Levita, Salas Duhne, Girling, & Waller, 2016). Following reading each vignette, the participants indicated the likelihood of utilizing these techniques on a seven-point Likert scale, ranging from “Extremely unlikely” (1) to “Extremely likely” (7). Table 1 also shows the Cronbach’s alpha from each subset of techniques, which was calculated using the pooled data from the six vignettes. All alpha coefficients were above 0.7, which indicates an acceptable internal consistency in all technique subsets.

**Table 1. Techniques commonly used in CBT listed in the survey**

| Technique | Group to which it belongs |
|---|---|
| 1. Mindfulness techniques | Talking-based techniques |
| 2. Exploring the patients' childhood and past | |
| 3. Spending time looking at the link between beliefs, thoughts and feelings | |
| 4. Exploring the patients' patterns of relating to people | |
| 5. Changing the meaning attached to thoughts | |
| 6. Spending sessions talking about whatever is on the patients' mind | |
| 7. Setting an agenda at the beginning of each session | |
| 8. Remain silent | |
| 9. Cognitive restructuring | |
| 10. Motivational work | |
| 11. Psychoeducation | |
| 12. Socratic questioning | |
| | Cronbach's alpha=0.936 |
| 13. Asking patients to keep records of their thoughts | Change-oriented-based techniques |
| 14. Relaxation exercises | |
| 15. Behavioural activation | |
| 16. Addressing therapy interfering behaviours | |
| 17. Diary keeping | |
| 18. Behavioural experiments | |
| | Cronbach's alpha=0.899 |
| 19. Exposure | |
| | Cronbach's alpha=0.772 |

Following completion of the vignettes, the clinicians were asked to complete the following self-report measures of their psychological characteristics:

**Cognitive-Somatic Anxiety Questionnaire** (CSAQ; Schwartz, Davidson, & Goleman, 1978). The CSAQ is a measure of anxiety, evaluating cognitive and emotional responses to perceived threats. It has two factors (cognitive and somatic anxiety), with acceptable reliability (Cronbach's alpha = 0.83 for cognitive anxiety and 0.80 for somatic anxiety). A translated and validated version of this measure was used for the Mexican clinicians, (Zanatta Colin, Bonilla Muñoz, & Trejo González, 2003), which has an internal consistency of 0.84 for cognitive anxiety, and 0.81 for somatic anxiety.

**Ten-Item Personality Inventory** (TIPI; Gosling, Rentfrow, & Swann, 2003). The TIPI is a brief measure of the five-factor personality scales (extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience). It has acceptable test-retest correlations and a significant convergent validity with the longer NEO-PI-R (Costa & McCrae, 1992). It also has strong inter-rater reliability and correlates well with participant's self-assessment ratings of their personality types. Mexican therapists completed the Spanish-language version of this test (Renau, Oberst, Gosling, Rusiñol, & Chamarro, 2013). Test-retest correlations for the Spanish version of the TIPI are above 0.60, significant on a $p$=0.001 level.

**Firmness and Empathy Questionnaire** (FEQ; McAdam Freud & Waller, in preparation). The FEQ consists of 16 statements – eight for firmness and eight for empathy. Empathy can be conceptualised as a personal characteristic that allows us to understand others' experiences, whereas firmness can be interpreted as one's ability to maintain boundaries and remaining objective (McAdam Freud & Waller, in preparation). Cronbach's alpha for the Empathy scale is 0.810, and 0.623 for the Firmness scale. Mexican therapists responded a Spanish version of this tool, which was translated by the main author – a native Spanish speaker.

### Data analysis

The main analysis was carried out utilizing a repeated measures ANOVA, including patient's mood (anxious, angry, calm), technique type (talking-based, change oriented-based, exposure), and gender (male, female) as independent variables, and the likelihood of utilizing a technique as dependant variable. Clinicians' age, experience, anxiety level, personality, and firmness/empathy were used as covariates to assess whether they influenced the likelihood of technique use.

## Results

### Sample characteristics

Table 2 shows a descriptive summary of the participants' characteristics. The sample consisted of 128 therapists – 59.4% from the UK and 40.6% from Mexico. The proportion of

female participants was higher than men – 65.8% and 73.1% female for UK and Mexican participants, respectively. About half of the participants had a background in psychology, and most of them had a theoretical orientation in CBT, reporting having formal training on it. The majority of participants reported seeing between 1 and 10 patients per week, and stated they treated most of their patients with CBT. Most clinicians reported they had less than one hour of supervision per week.

**Table 2. Participants' demographic and professional characteristics**

| **Numerical variables** | | | |
|---|---|---|---|
| | | ***M*** | ***SD*** |
| Age (years) | | 45.08 | 13.44 |
| Experience as therapist (years) | | 16.19 | 12.04 |
| Experience with CBT (years) | | 11.68 | 9.18 |
| **Categorical variables** | | | |
| | | ***n*** | ***%*** |
| Gender | Male | 40 | 31.3 |
| | Female | 88 | 68.7 |
| Profession | Psychologist | 74 | 57.8 |
| | Nurse (Psychiatric, mental health, others) | 18 | 14.1 |
| | CBT Therapist | 12 | 9.4 |
| | Occupational therapist | 5 | 3.9 |
| | Counselling | 4 | 3.1 |
| | Social worker | 3 | 2.3 |
| | Mental health practitioner | 2 | 1.6 |
| | Other | 10 | 7.8 |
| Theoretical orientation | CBT and related | 104 | 81.3 |
| | Other | 19 | 14.8 |
| | Did not respond | 5 | 3.9 |
| Formal training in CBT | Yes | 122 | 95.3 |
| | No | 5 | 4.7 |
| Patients treated per week | <1 | 5 | 3.9 |
| | 1-5 | 30 | 23.4 |
| | 6-10 | 28 | 21.9 |
| | 11-15 | 23 | 18 |
| | 15-20 | 22 | 17.2 |
| | >20 | 20 | 15.6 |

| | | | |
|---|---|---|---|
| Patients treated with CBT (%) | 0-10 | 3 | 2.3 |
| | 11-20 | 2 | 1.6 |
| | 21-30 | 6 | 4.7 |
| | 31-40 | 2 | 1.6 |
| | 41-50 | 2 | 1.6 |
| | 51-60 | 6 | 4.7 |
| | 61-70 | 10 | 7.8 |
| | 71-80 | 10 | 7.8 |
| | 81-90 | 35 | 27.3 |
| | 91-100 | 52 | 40.6 |
| Hours of supervision per week | <1 | 95 | 74.2 |
| | 1-2 | 29 | 22.7 |
| | >3 | 4 | 3.1 |

**Overall use of techniques**

The mean scores and standard deviations for technique use across conditions are shown in Table 3, with the results of the ANOVA reported in Table 4. The significant main effects and interactions are detailed below. All stated differences below were tested using paired *t*-tests, and were significant at $p < 0.05$).

**Table 3. Mean levels of clinicians' reported technique use by patients' mood and gender**

| Mood | Gender | Type of technique | *M* | *SD* |
|---|---|---|---|---|
| Anxious | Female | Talking-based | 5.375 | 0.667 |
| | | Change-oriented-based | 5.541 | 0.834 |
| | | Exposure | 6.430 | 1.181 |
| | Male | Talking-based | 5.127 | 0.813 |
| | | Change-oriented-based | 5.668 | 0.777 |
| | | Exposure | 6.460 | 1.321 |
| Angry | Female | Talking-based | 5.320 | 0.906 |
| | | Change-oriented-based | 5.313 | 1.099 |
| | | Exposure | 4.260 | 1.814 |
| | Male | Talking-based | 5.052 | 0.978 |
| | | Change-oriented-based | 5.388 | 1.064 |
| | | Exposure | 5.720 | 1.845 |
| Calm | Female | Talking-based | 5.160 | 0.843 |
| | | Change-oriented-based | 4.980 | 1.113 |
| | | Exposure | 4.110 | 1.702 |
| | Male | Talking-based | 5.319 | 0.708 |
| | | Change-oriented-based | 5.638 | 0.737 |
| | | Exposure | 4.610 | 1.960 |

**Table 4. 3x2x3 ANOVA comparing clinicians' technique use by patients' mood and gender**

| | *f* | *p* | *Partial* $\eta^2$ |
|---|---|---|---|
| Mood | 42.677 | **<0.001** | 0.366 |
| Gender | 20.146 | **<0.001** | 0.214 |
| Technique | 2.508 | 0.101 | 0.033 |
| Mood * Gender | 9.412 | **<0.001** | 0.113 |
| Mood * Technique | 62.518 | **<0.001** | 0.458 |
| Gender * Technique | 26.439 | **<0.001** | 0.263 |
| Mood * Gender * Technique | 14.695 | **<0.001** | 0.166 |

**Main effects.** The effect of patient mood was due to therapists stating that they would use more techniques overall if the patient was experiencing situational anxiety compared to if they were angry or calm. They were also more likely to use these techniques overall with male patients than female patients.

**Two-way interactions.** The mood*gender interaction was the result of clinicians stating that they would not change their level of use of techniques overall according to patient mood when the patient was male, but reducing their use of techniques for angry and for calm female patients. The mood*technique interaction shows that exposure was more likely to be used for anxious patients, and less likely for calm patients, as might be expected. Finally, the gender*technique interaction shows that male patients are more likely to be offered exposure work than female patients.

**Three-way interaction.** This overall interaction effect showed that there were no differences according to patient gender or mood in the use of talking-based and other behavioural methods. However, there were impacts of patient gender and mood specifically on the use of exposure. Where the patient was situationally anxious, both men and women were more likely to be offered exposure than other methods. In contrast, if the patient was calm, exposure was significantly less likely to be offered. However, if the patient was angry, men were significantly more likely to be offered exposure than women.

**Summary.** Patient gender and emotional state each influenced the use of different therapeutic techniques. Most notably, gender and mood interacted to influence the use of exposure therapy. In particular, exposure therapy was more likely to be offered to a male patient with was experiencing anger in the session, while it was less likely to be offered to an angry female patient. Detailed information about the pattern of results for significant effects of the ANOVA can be found in Supplementary Material B.

**Impact of clinician characteristics on technique usage**

An ANCOVA was used to test whether clinician characteristics might explain some of the previously significant main effects and interactions. The ANOVA described above was repeated with clinicians' age, experience, personality, anxiety, and firmness/empathy used as covariates. None of the previously significant main interaction effects remained significant or approached significance. Only firmness and empathy showed several significant effects as covariates (Table 5), while no other potential covariates were significant.

**Table 5. ANCOVA showing covariate interactions**

| | Main | | Empathy | | Firmness | |
|---|---|---|---|---|---|---|
| | *f* | *p* | *f* | *p* | *f* | *p* |
| Mood | 1.837 | 0.163 | 4.295 | **0.015** | 0.814 | 0.433 |
| Gender | 1.322 | 0.254 | 0.984 | **0.325** | 5.391 | **0.023** |
| Mood * Gender | 2.053 | 0.132 | 0.984 | 0.370 | 0.986 | 0.375 |
| Mood * Technique | 1.795 | 0.130 | 4.619 | **0.001** | 0.666 | 0.616 |
| Gender * Technique | 0.137 | 0.872 | 2.955 | 0.077 | 2.966 | 0.076 |
| Mood * Gender * Technique | 1.889 | 0.112 | 3.284 | **0.012** | 0.228 | 0.923 |

The participants' level of Empathy was significant in accounting for three effects (Mood, Mood*Technique and Mood*Gender*Technique). The covariate of Firmness was linked to the loss of the main effect of gender. The results are illustrated in scatter plots (Supplementary material C-F).

**The role of clinician empathy.** Higher levels of clinician empathy were associated with a higher likelihood of implementing CBT techniques when treating anxious or angry patients (Mood effect - Supplementary material C). In contrast, high levels of clinician empathy indicated being less likely to deliver the techniques to calm patients. Thus, clinicians who are more empathic are more likely to offer highly emotional patients a larger number of CBT techniques.

When considering the impact of empathy on the Mood*Technique interaction, high levels of empathy are associated with a higher likelihood of delivering behavioural techniques to angry and anxious patients, more likelihood of delivering talking techniques to control patients, and less likelihood of delivering exposure therapy to calm patients (Supplementary material D). Thus, clinicians who are more empathic are more likely to use talking techniques with patients who have low emotional arousal, but behavioural techniques with those who have high emotional arousal.

Considering the relationship of Empathy with the Mood*Gender*Technique interaction (Supplementary material E), more empathic clinicians were less likely to deliver

exposure to all calm patients; more likely to deliver behavioural techniques to all angry patients; and more likely to deliver behavioural interventions to male patients.

**The role of clinician firmness.** High levels of clinician firmness were associated with being less likely to deliver the techniques overall to patients of both genders (Supplementary material F). However, this relationship was more marked for male patients. In short, firmer clinicians tend to focus on a smaller range of techniques for their patients, but more so if the patient is male.

## Discussion

The main goal of this study was to determine whether patients' characteristics (gender and mood) influenced the way clinicians delivered CBT. A series of fictional vignettes were presented to a sample of therapists who reported delivering CBT. Those vignettes depicted clinical situations in which they had to treat a patient, male or female, behaving in an anxious, angry, or calm (control) way. They indicated the likelihood of utilizing a number of techniques commonly used in CBT with that specific patient. A second goal was to investigate whether clinicians' own characteristics influenced the way they deliver therapy.

Regarding the first goal, patient characteristics were related to technique usage. Anxious patients were the most likely to receive more techniques, especially exposure. However, exposure was underused with calm patients overall, but this was more marked with angry female patients. Regarding gender, therapists were likely to deliver more techniques to male patients, while angry and calm female patients were the least likely to receive the techniques. Finally, therapists were likely to deliver more 'talking' techniques to women than to men.

Concerning our second goal, clinician characteristics, particularly firmness and empathy, also affected therapy delivery. Empathic clinicians were likely to deliver more techniques to angry and anxious patients, but less so to calm patients. Empathic clinicians were also more likely to utilize 'talking' techniques with calm patients, and behavioural techniques with emotionally aroused patients. Furthermore, empathic clinicians were less

likely to utilize exposure if the patient was calm. Finally, firm clinicians were less likely to deliver the techniques to patients of both genders, but particularly so for male patients.

These outcomes suggest that clinicians treat patients differently, either consciously or inadvertently. For example, it is possible that clinicians are less likely to deliver the techniques to angry patients due to a concern that they will get even more upset or distressed. This concern appears to be even stronger when the angry patient is female, possibly reflecting certain clinician biases and stereotypes such as believing that women are less resilient (Fitzgerald & Hurst, 2017; Marcum, 2017). Clinicians' empathy and firmness also influenced their intended behaviour. Empathic clinicians were more likely to deliver more techniques to patients who could be considered as 'challenging' (angry or anxious). This pattern could imply that empathic clinicians are more willing to use a wider range of techniques. Alternatively, it could indicate that the more empathic clinicians were less focused than evidence-based protocols would suggest (e.g., Andrews et al., 2002; Dugas & Robichaud, 2006; Reilly & Shopshire, 2019). Empathic clinicians also utilized more passive techniques with calm patients (e.g., more talking and less exposure), which could be an indicative of empathic clinicians' ability to assess their patients' emotional responses and plan the therapy accordingly. In contrast, firmness was associated with a lower likelihood of technique usage with male patients. This pattern could suggest that firm clinicians prefer to use a smaller but targeted range of techniques, especially with male patients.

Our findings have some similarities with existing literature. In line with previous studies (Kosmerly et al., 2015; Waller et al., 2012; Wisniewski et al., 2018), we found that some CBT techniques are less likely to be used by clinicians than protocols indicate (e.g., Andrews et al., 2002; Dugas & Robichaud, 2006; Reilly & Shopshire, 2019). However, this occurred to a lesser extent in our study, as most of the techniques were likely or very likely to be utilized by the clinicians. This difference might relate to the use of a vignette-based study, which is likely to result in greater reported likelihood of using techniques than studies indicate in everyday practice (e.g., Simpson-Southward, Waller & Hardy, 2016).

**Limitations and future research**

This research has a number of limitations. The case vignettes utilised in this study were not tested for face validity. Future studies where CBT experts review the vignettes are encouraged, as well as the administration of the vignettes to a small group of participants to ensure that the content of the vignettes is relevant for its purposes. Similarly, the Spanish version of the Firmness and Empathy Questionnaire (McAdam Freud & Waller, in preparation) responded by the Mexican participants has not been validated, given that this is a novel measure. The translation was made, however, by a native Mexican Spanish Speaker (main author), which might enhance the relevance of this measure for the participants.

The techniques included in this study were grouped based on previous research (Levita et al., 2016). Technique grouping based on factor analyses or similar methods might be more reliable. Although clinicians were asked whether they received formal training in CBT, they might have received different types of training (e.g., training with an accrediting body, full accreditation in CBT, etc). These different training modalities have different levels of intensity and length, which might not make them comparable.

The use of self-report tools also has drawbacks, as it might overestimate the use of therapeutic methods. More direct observational methods of therapeutic competence and adherence should be conducted in future, examining the interactions between therapist/client genders. However, the value of experimental methods is important in this field, as they have high internal validity and minimise the effect of confounding variables (Allen, 2017). Experimental methods are therefore also encouraged in this area of research.

**Clinical implications**

Therapists are encouraged to manage and correct the biases in their thinking when it comes to gender stereotypes and delivering CBT. Treating male and female patients differently on the bases of gender alone can prevent patients from receiving a complete therapy. Technique underuse is a form of therapy modification; therefore, such modifications should be tested to prove that they work rather than being assumed to be effective. Although clinicians should be flexible while delivering CBT (as protocols indicate), they should be

aware of the risk of doing so excessively or inappropriately – namely, delivering a therapy that lacks the necessary components to promote patients' recovery. These modifications are especially discouraged if the changes are based on clinicians' gender biases alone. Our recommendations apply particularly when the adjustments to therapy are related to clinicians' own levels of firmness and empathy, as we cannot be certain that such personal characteristics are leading us into clinically useful flexibility or into unhelpful drift away from protocols and effective treatment. Good quality clinical supervision, along with the self-application of some CBT techniques (e.g., identifying and addressing cognitive distortions) can be effective ways for clinicians to identify and remediate any gender biases they might hold.

**Conclusion**

Therapist drift is a phenomenon that can be elicited by some patient characteristics, such as their gender and their emotional state. The results of this study indicate that female patients, as well as angry patients overall, are more likely to receive a narrower range of CBT components. Furthermore, some therapist factors such as their levels of firmness and empathy can affect the range of techniques they use. Clinicians are encouraged to be mindful of these possible biases, and to take actions to try to minimise their effects.

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**Supplementary material A. Vignettes presented to the participants**

| Patient | Vignette |
|---|---|
| Anxious female | Gloria is a 27-year-old woman. She describes herself as a very shy, introverted person, and has been struggling in her new job. She says that she feels very intimidated by her boss, and that she's afraid of being judged by her colleagues, so she tends to avoid everyone as much as possible. Gloria recognizes that this will eventually damage her career, so she looks for psychological support. While in therapy, she is clearly nervous, stating that she is afraid of 'opening up to a complete stranger'. As her therapist, you decide that cognitive-behavioural therapy would suit Gloria's situation. How likely is it that you would use each of the following techniques as part of that approach? |
| Angry female | Clara is a 20-year-old psychology student. She was referred to therapy after recently threatening to kill herself when she failed one of her course modules. Clara shows up in therapy, where she complains that she doesn't need therapy, and that she knows as much about psychology as any therapist. She starts to behave more aggressively, raising her voice and cursing. You decide that a cognitive-behavioural approach would be suitable for Clara's situation. How likely is that you will use the following techniques with her? |
| Calm female | Sara is a 40-year-old patient, who seeks therapy after the loss of her father. She acknowledges that she is going through a very difficult time, and that she needs additional help to go through it. Sara attends therapy punctually, and seems very interested and willing to work in order to get better. As her therapist, you chose a cognitive behavioural approach to treat her. How likely is that you will implement each of these techniques with Sara? |
| Anxious male | Daniel is 25-year-old men with severe claustrophobia. He recently started working in an office that he describes as being 'too small', and says that he can 'barely breathe when he's there'. Daniel doesn't want to lose this job, so he looks for psychological help. While in therapy, Daniel is extremely nervous. He says he has 'always been like this', and that it will be 'impossible' for him to get better. As Daniel's therapist, you decide that a cognitive-behavioural approach would suit his needs. How likely is it that you would use each of the following techniques as part of the therapy? |
| Angry male | Gabriel is 26-year-old men who recently started working as a police officer. Some weeks ago, one of his co-workers was shot and killed. Since then, Gabriel has experienced several panic attacks. One of those panic attacks occurred during working hours in the presence of his boss, who required him to get psychological help. Gabriel is clearly angry. He is reluctant to speak, and states that he doesn't want to be in therapy. He believes that therapy is |

| | |
|---|---|
| | a waste of his time, and that the panic attacks will eventually go away on their own. As Gabriel's therapist, you decide that a cognitive-behavioural approach would suit his needs. How likely is it that you would use the following techniques as part of the approach? |
| Calm male | Alan is 30 years old, and has been unable to hold a job for the last year. He says that some days he feels very active and motivated, but suddenly he starts feeling depressed and miserable, and doesn't want to go to work. He recognizes that he has a problem and that he has to do something about it, or things could get worse. Alan attends therapy, where he shows his willingness to cooperate, and seems very involved in the process. As Alan's therapist, you decide that you'll treat him using a cognitive-behavioural approach. How likely is that you will use the following techniques with Alan? |

**Supplementary material B. ANOVA follow-up pairwise comparisons**

A) Emotion interactions

| **Gender** 1=Male; 2=Female | **Technique** 1=Exposure 2=Talking-based 3=Change-oriented-based | **(I) Emotion** 1=Anxious 2=Angry 3=Calm | **(J) Emotion** 1=Anxious 2=Angry 3=Calm | Mean Difference (I-J) | Std. Error | Sig.[b] | 95% Confidence Interval for Difference[b] | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower Bound | Upper Bound |
| 1 | 1 | 1 | 2 | .737* | .185 | <.001 | .284 | 1.189 |
| | | | 3 | 1.855* | .248 | <.001 | 1.249 | 2.462 |
| | | 2 | 1 | -.737* | .185 | <.001 | -1.189 | -.284 |
| | | | 3 | 1.118* | .260 | <.001 | .481 | 1.756 |
| | | 3 | 1 | -1.855* | .248 | <.001 | -2.462 | -1.249 |
| | | | 2 | -1.118* | .260 | <.001 | -1.756 | -.481 |
| | 2 | 1 | 2 | .075 | .087 | 1.000 | -.138 | .287 |
| | | | 3 | -.192* | .047 | <.001 | -.307 | -.078 |
| | | 2 | 1 | -.075 | .087 | 1.000 | -.287 | .138 |
| | | | 3 | -.267* | .091 | .013 | -.489 | -.045 |
| | | 3 | 1 | .192* | .047 | <.001 | .078 | .307 |
| | | | 2 | .267* | .091 | .013 | .045 | .489 |
| | 3 | 1 | 2 | .281* | .110 | .037 | .012 | .549 |
| | | | 3 | .031 | .075 | 1.000 | -.152 | .213 |
| | | 2 | 1 | -.281* | .110 | .037 | -.549 | -.012 |
| | | | 3 | -.250 | .114 | .094 | -.529 | .029 |
| | | 3 | 1 | -.031 | .075 | 1.000 | -.213 | .152 |
| | | | 2 | .250 | .114 | .094 | -.029 | .529 |
| 2 | 1 | 1 | 2 | 2.171* | .229 | <.001 | 1.610 | 2.732 |
| | | | 3 | 2.329* | .212 | <.001 | 1.809 | 2.849 |
| | | 2 | 1 | -2.171* | .229 | <.001 | -2.732 | -1.610 |
| | | | 3 | .158 | .170 | 1.000 | -.258 | .573 |
| | | 3 | 1 | -2.329* | .212 | <.001 | -2.849 | -1.809 |
| | | | 2 | -.158 | .170 | 1.000 | -.573 | .258 |
| | 2 | 1 | 2 | .055 | .081 | 1.000 | -.143 | .252 |
| | | | 3 | .215* | .068 | .007 | .047 | .382 |
| | | 2 | 1 | -.055 | .081 | 1.000 | -.252 | .143 |
| | | | 3 | .160* | .053 | .011 | .030 | .290 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 3 | 1 | -.215* | .068 | .007 | -.382 | -.047 |
| | | | 2 | -.160* | .053 | .011 | -.290 | -.030 |
| | 3 | 1 | 2 | .228 | .127 | .226 | -.082 | .538 |
| | | | 3 | .561* | .121 | <.001 | .265 | .858 |
| | | 2 | 1 | -.228 | .127 | .226 | -.538 | .082 |
| | | | 3 | .333* | .101 | .004 | .086 | .581 |
| | | 3 | 1 | -.561* | .121 | <.001 | -.858 | -.265 |
| | | | 2 | -.333* | .101 | .004 | -.581 | -.086 |

B) Gender interactions

| **Emotion** 1=Anxious 2=Angry 3=Calm | **Technique** 1=Exposure 2=Talking-based 3=Change-oriented-based | **(I) Gender** 1=Male 2=Female | **(J) Gender** 1=Male 2=Female | Mean Difference (I-J) | Std. Error | Sig.[b] | 95% Confidence Interval for Difference[b] Lower Bound | Upper Bound |
|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 2 | .026 | .140 | .852 | -.253 | .305 |
| | | 2 | 1 | -.026 | .140 | .852 | -.305 | .253 |
| | 2 | 1 | 2 | -.248* | .047 | <.001 | -.341 | -.155 |
| | | 2 | 1 | .248* | .047 | <.001 | .155 | .341 |
| | 3 | 1 | 2 | .127 | .069 | .069 | -.010 | .265 |
| | | 2 | 1 | -.127 | .069 | .069 | -.265 | .010 |
| 2 | 1 | 1 | 2 | 1.461* | .240 | <.001 | .982 | 1.939 |
| | | 2 | 1 | -1.461* | .240 | <.001 | -1.939 | -.982 |
| | 2 | 1 | 2 | -.268* | .060 | <.001 | -.387 | -.149 |
| | | 2 | 1 | .268* | .060 | <.001 | .149 | .387 |
| | 3 | 1 | 2 | .075 | .088 | .397 | -.100 | .249 |
| | | 2 | 1 | -.075 | .088 | .397 | -.249 | .100 |
| 3 | 1 | 1 | 2 | .500* | .199 | .014 | .104 | .896 |
| | | 2 | 1 | -.500* | .199 | .014 | -.896 | -.104 |
| | 2 | 1 | 2 | .159* | .076 | .039 | .008 | .310 |
| | | 2 | 1 | -.159* | .076 | .039 | -.310 | -.008 |
| | 3 | 1 | 2 | .658* | .110 | <.001 | .438 | .877 |
| | | 2 | 1 | -.658* | .110 | <.001 | -.877 | -.438 |

C) Technique interactions

| Emotion 1=Anxious 2=Angry 3=Calm | Gender 1=Male 2=Female | (I) Technique 1=Exposure 2=Talking-based 3=Change-oriented-based | (J) Technique 1=Exposure 2=Talking-based 3=Change-oriented-based | Mean Difference (I-J) | Std. Error | Sig.[b] | 95% Confidence Interval for Difference[b] | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower Bound | Upper Bound |
| 1 | 1 | 1 | 2 | 1.333* | .170 | <.001 | .918 | 1.748 |
| | | | 3 | .792* | .145 | <.001 | .437 | 1.147 |
| | | 2 | 1 | -1.333* | .170 | <.001 | -1.748 | -.918 |
| | | | 3 | -.541* | .085 | <.001 | -.749 | -.333 |
| | | 3 | 1 | -.792* | .145 | <.001 | -1.147 | -.437 |
| | | | 2 | .541* | .085 | <.001 | .333 | .749 |
| | 2 | 1 | 2 | 1.059* | .147 | <.001 | .698 | 1.420 |
| | | | 3 | .893* | .137 | <.001 | .558 | 1.228 |
| | | 2 | 1 | -1.059* | .147 | <.001 | -1.420 | -.698 |
| | | | 3 | -.166 | .081 | .134 | -.365 | .033 |
| | | 3 | 1 | -.893* | .137 | <.001 | -1.228 | -.558 |
| | | | 2 | .166 | .081 | .134 | -.033 | .365 |
| 2 | 1 | 1 | 2 | .671* | .177 | <.001 | .237 | 1.105 |
| | | | 3 | .336 | .161 | .121 | -.058 | .729 |
| | | 2 | 1 | -.671* | .177 | <.001 | -1.105 | -.237 |
| | | | 3 | -.336* | .088 | <.001 | -.551 | -.120 |
| | | 3 | 1 | -.336 | .161 | .121 | -.729 | .058 |
| | | | 2 | .336* | .088 | <.001 | .120 | .551 |
| | 2 | 1 | 2 | -1.058* | .184 | <.001 | -1.508 | -.607 |
| | | | 3 | -1.050* | .179 | <.001 | -1.488 | -.613 |
| | | 2 | 1 | 1.058* | .184 | <.001 | .607 | 1.508 |
| | | | 3 | .007 | .088 | 1.000 | -.207 | .222 |
| | | 3 | 1 | 1.050* | .179 | <.001 | .613 | 1.488 |
| | | | 2 | -.007 | .088 | 1.000 | -.222 | .207 |
| 3 | 1 | 1 | 2 | -.715* | .211 | .003 | -1.232 | -.197 |
| | | | 3 | -1.033* | .213 | <.001 | -1.554 | -.512 |
| | | 2 | 1 | .715* | .211 | .003 | .197 | 1.232 |
| | | | 3 | -.318* | .072 | <.001 | -.495 | -.141 |
| | | 3 | 1 | 1.033* | .213 | <.001 | .512 | 1.554 |
| | | | 2 | .318* | .072 | <.001 | .141 | .495 |
| | 2 | 1 | 2 | -1.056* | .168 | <.001 | -1.466 | -.645 |

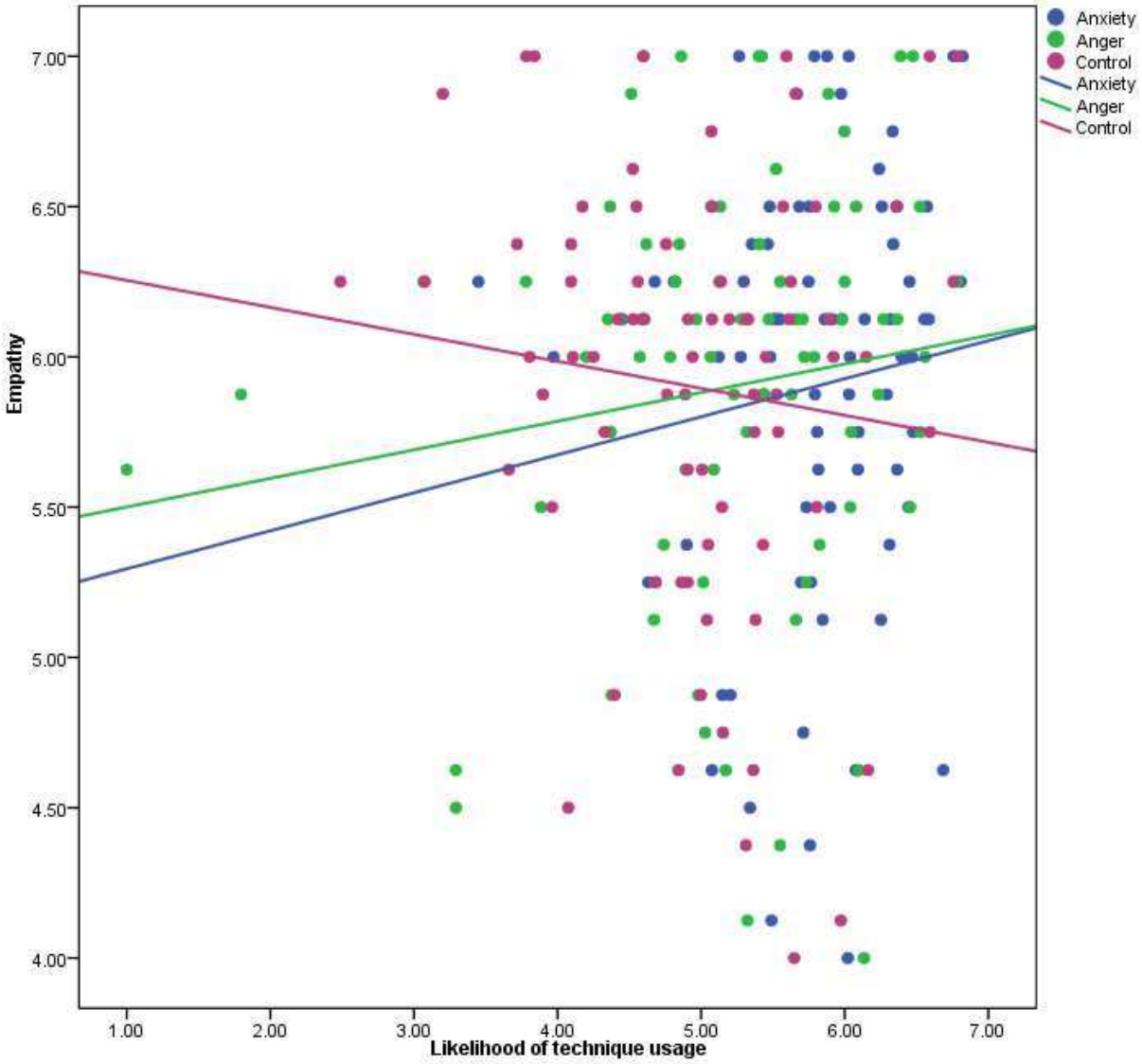
| | | | | | | |
|---|---|---|---|---|---|---|
| | | 3 | -.875* | .172 | <.001 | -1.297 | -.453 |
| | 2 | 1 | 1.056* | .168 | <.001 | .645 | 1.466 |
| | | 3 | .181 | .093 | .168 | -.047 | .409 |
| | 3 | 1 | .875* | .172 | <.001 | .453 | 1.297 |
| | | 2 | -.181 | .093 | .168 | -.409 | .047 |

Based on estimated marginal means

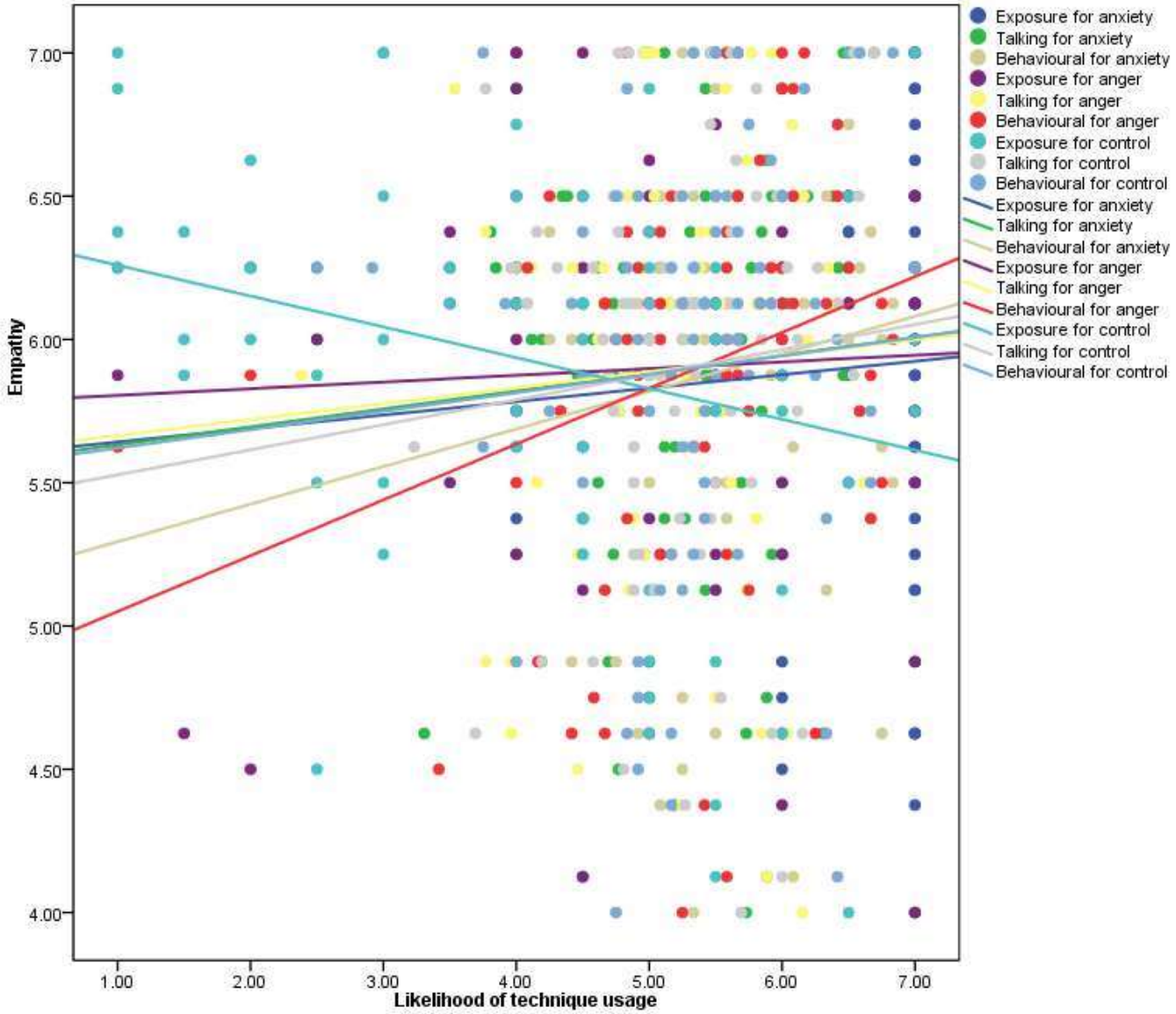
*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

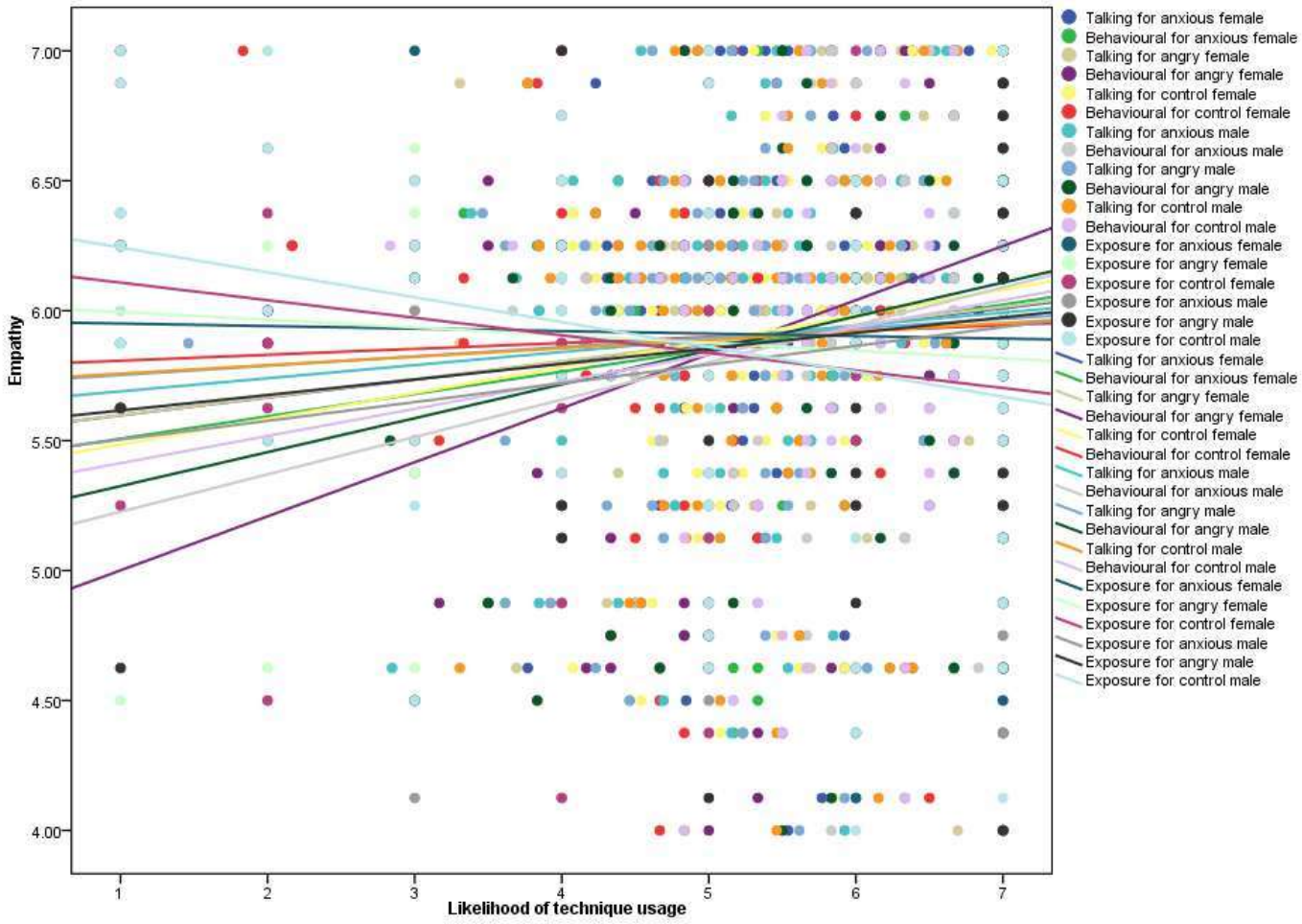
Suplementary material C



Suplementary material D



Suplementary material E



Suplementary material F