

# Game Experience Questionnaire Exploration

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## 1 Introduction

This report contains the analysis of the Game Experience Questionnaire (GEQ) survey data. Currently, the GEQ contains only the in-game and post-game modules. In this analysis, we will see how our patient pool perceive virtual reality (VR) using two VR headsets, Oculus Go and Oculus Rift.

## 2 Study Sample

32 patients went through a VR experiment at the Southwest Medical Associates (SMA) clinic in Las Vegas, NV. Upon close inspection of the GEQ data, one patient was missing while the rest were divided into two groups based on the type of VR headsets used. 31 patients used Oculus Go while 18 used Oculus Rift.

## 3 Results

This section is divided into three parts: Demographics, Components, and Plots. The first part contains the age group and gender breakdown under both VR headset groups. The second part contains the median component scores for the two modules under both groups. The last part contains individual plots for the responses of both groups on all questions of the two modules. The responses are broken down based on gender and age groups.

### 3.1 Demographics

For both groups, there are more female than male patients and majority of these patients belong to the 51-60 age group.

Table 1: Gender Breakdown for Oculus Go VR Headset Users

Gender	Count	Percentage
Male	10	32.3
Female	21	67.7

Table 2: Gender Breakdown for Oculus Rift VR Headset Users

Gender	Count	Percentage
Male	6	33.3
Female	12	66.7

Table 3: Age Group Breakdown for Oculus Go VR Headset Users

Age	Count	Percentage
18-30	1	3.2
31-40	3	9.7
41-50	4	12.9
51-60	12	38.7
61-70	6	19.4
70+	5	16.1

Table 4: Age Group Breakdown for Oculus Rift VR Headset Users

Age	Count	Percentage
31-40	2	11.1
41-50	4	22.2
51-60	6	33.3
61-70	3	16.7
70+	3	16.7

### 3.2 Component Scores

For both modules, the median component scores for both groups are close to each other except for the challenge component in the in-game module wherein the Oculus Rift group has a higher median score than the Oculus Go group which implies that the users in the former group are having a hard time with the Oculus Rift VR headset.

Overall, users from both groups have a positive experience with VR. However, the median scores for the positive experience of the in-game module are higher compared to the post-game module. This is mostly due to the number of items considered in computing the average scores for these components, two for the in-game positive affect component while six for the positive experience component.

Table 5: In-game Mean Component Scores of Oculus Go vs. Oculus Rift

Component	Oculus Go VR Headset	Oculus Rift VR Headset
Competence	3.3	2.8
Sensory and Imaginative Immersion	4.0	3.8
Flow	3.5	3.8
Tension	1.3	1.9
Challenge	2.0	3.8
Negative affect	1.6	1.7
Positive affect	4.2	3.8

Table 6: Post-game Mean Component Scores of Oculus Go vs. Oculus Rift

Component	Oculus Go VR Headset	Oculus Rift VR Headset
Positive Experience	2.9	2.8
Negative Experience	1.3	1.5
Tiredness	1.4	1.6
Returning to Reality	1.8	2.0

### 3.3 Clustering

Principal component analysis (PCA) was used on the technology attitude questions and k-means clustering was used to cluster the individuals into three clusters based on their attitude towards technology. Here are the descriptions for each cluster:

- Cluster 1 consists of members having consistently high positive attitude towards technology
- Cluster 2 consists of members having mixed attitudes towards technology
- Cluster 3 consists of members having consistently high negative attitude towards technology

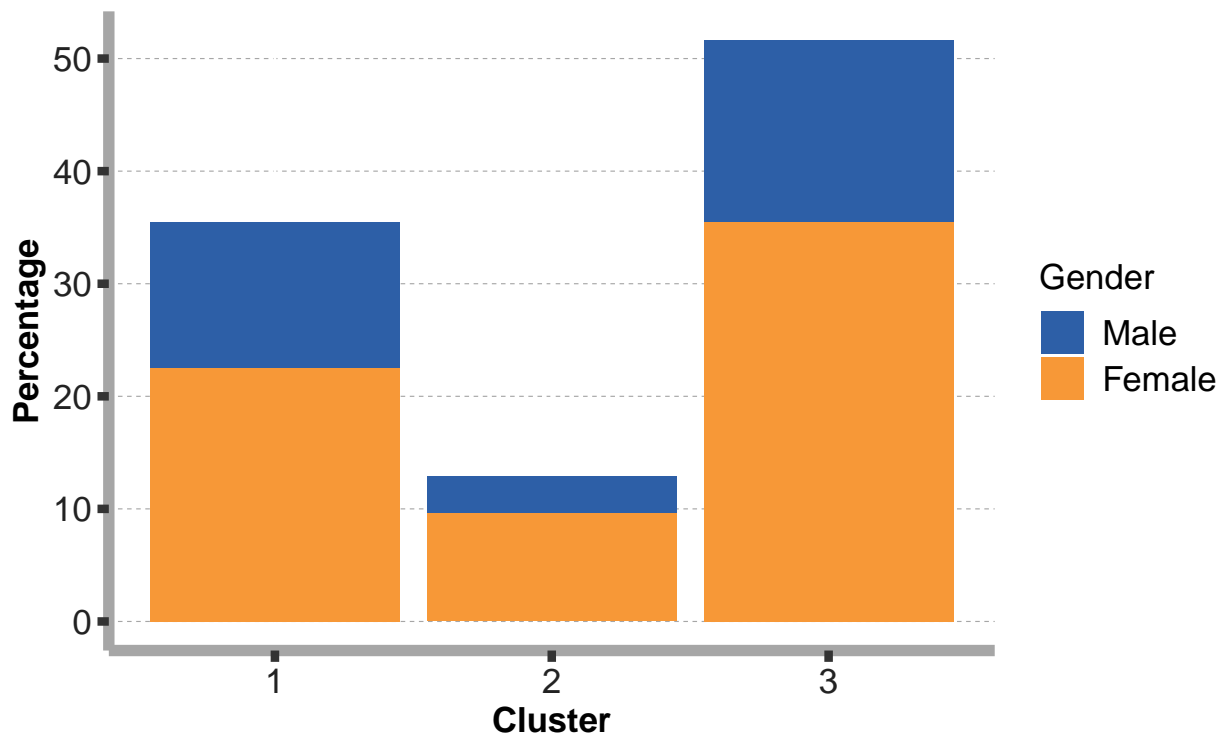
Table 7: Cluster Breakdown for Oculus Go VR Headset Users

Group	Count	Percentage
1	11	35.5
2	4	12.9
3	16	51.6

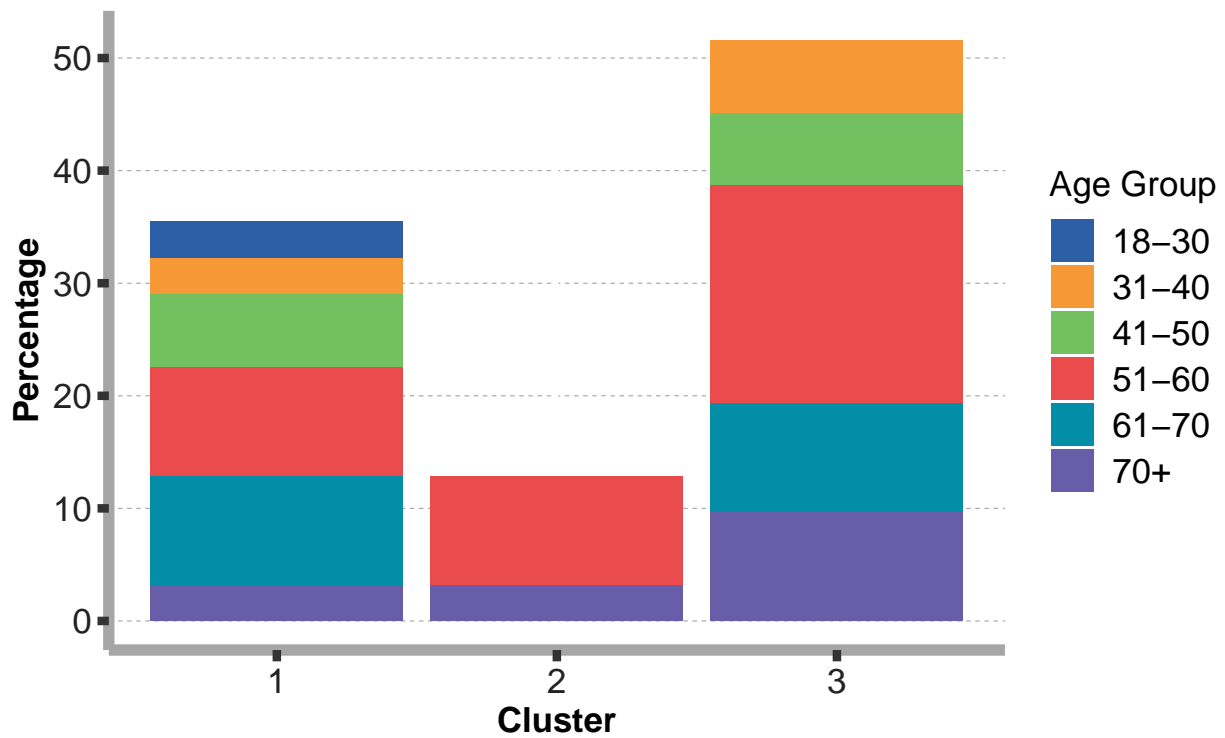
Table 8: Cluster Breakdown for Oculus Rift VR Headset Users

Group	Count	Percentage
1	6	33.3
2	3	16.7
3	9	50.0

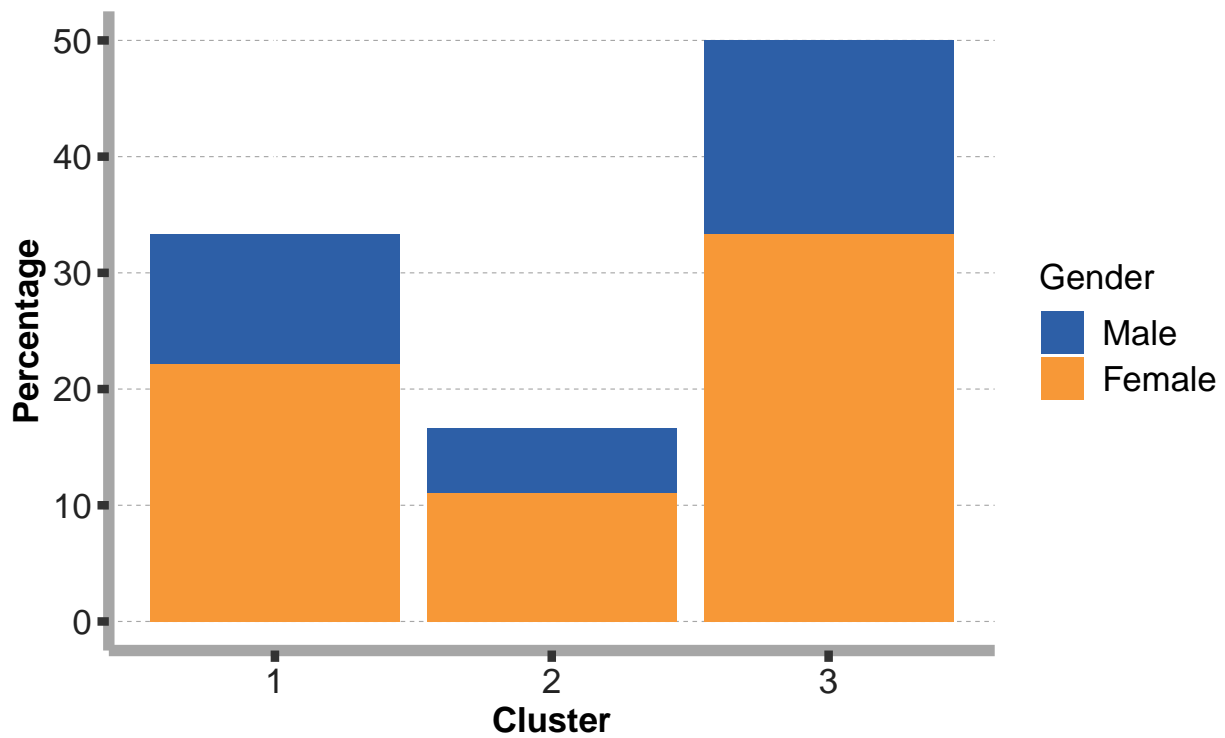
**Gender Breakdown by Cluster  
for Oculus Go VR Users**



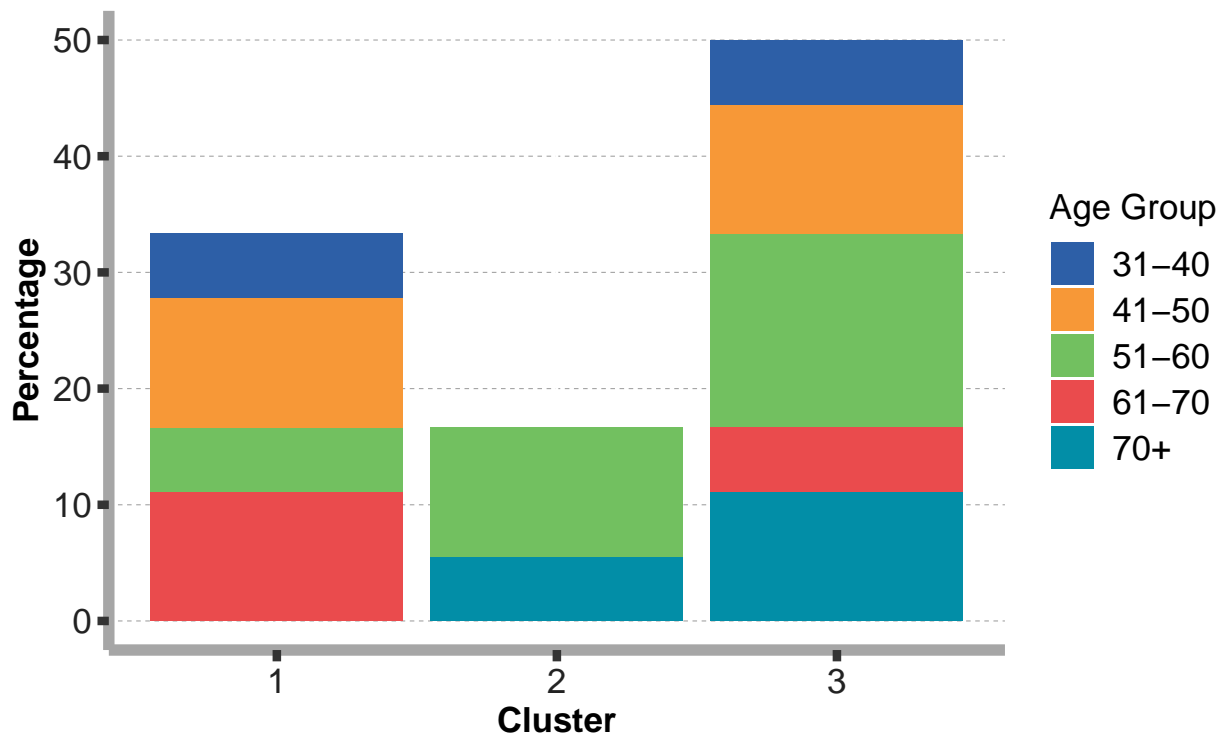
**Age Group Breakdown by Cluster  
for Oculus Go VR Users**



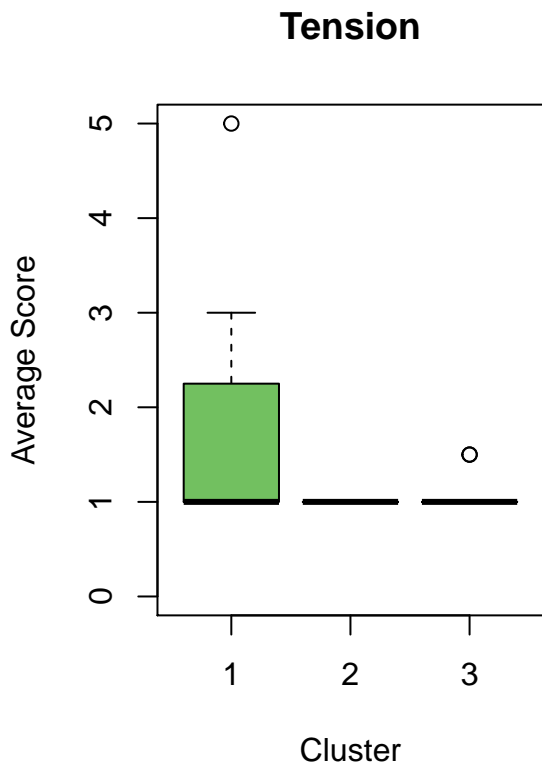
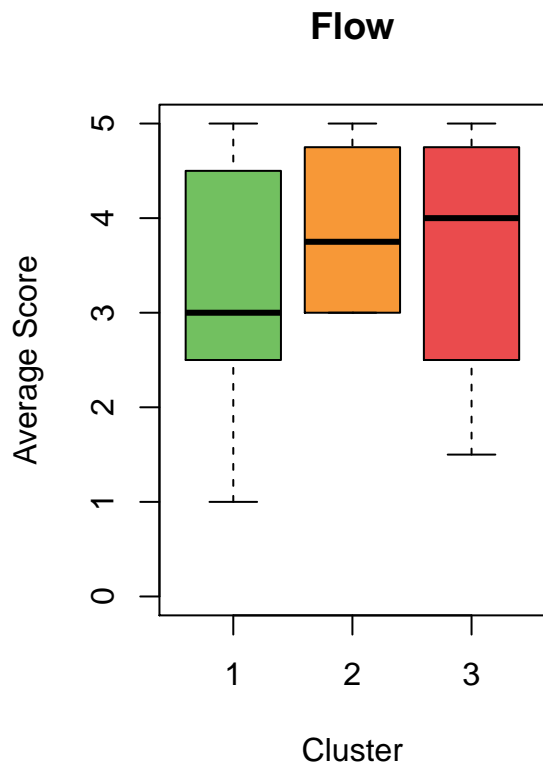
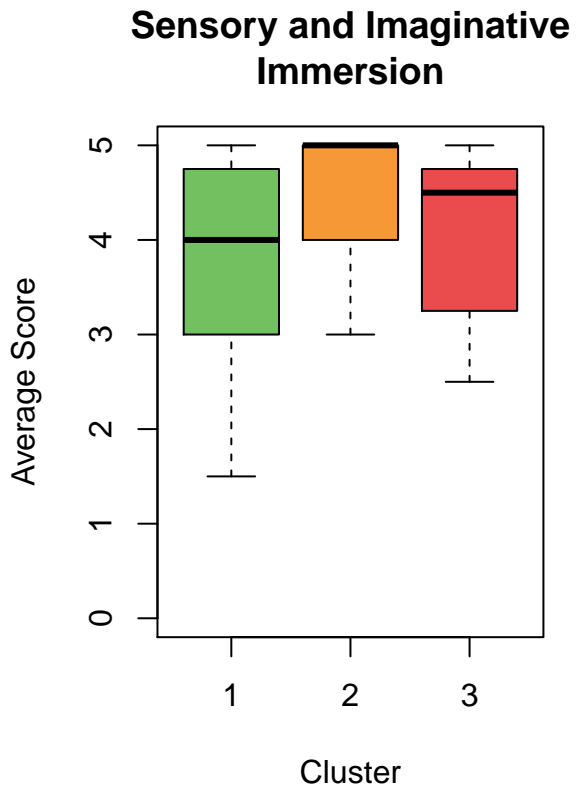
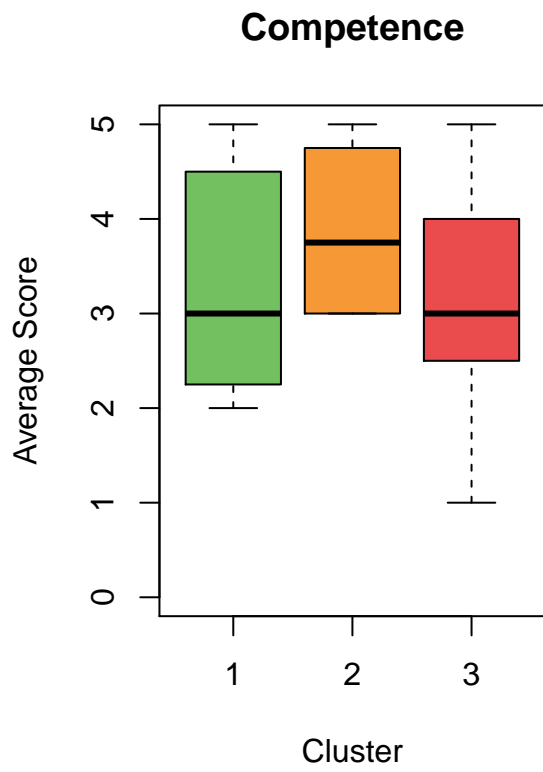
**Gender Breakdown by Cluster  
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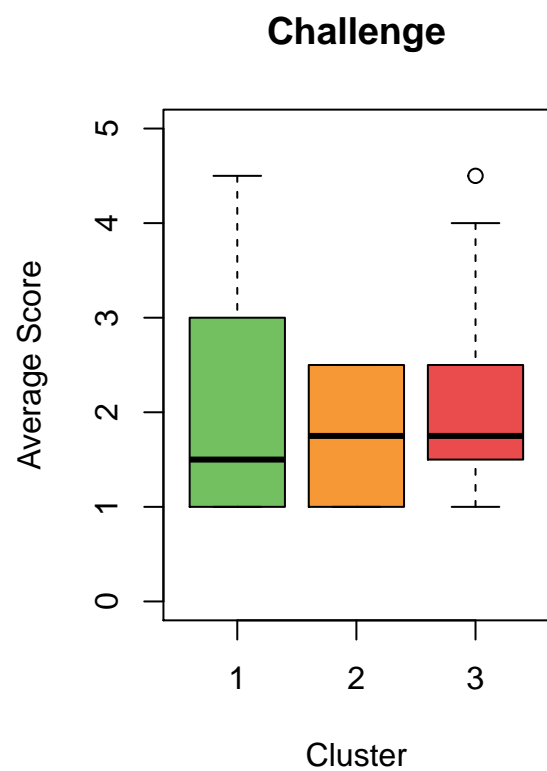
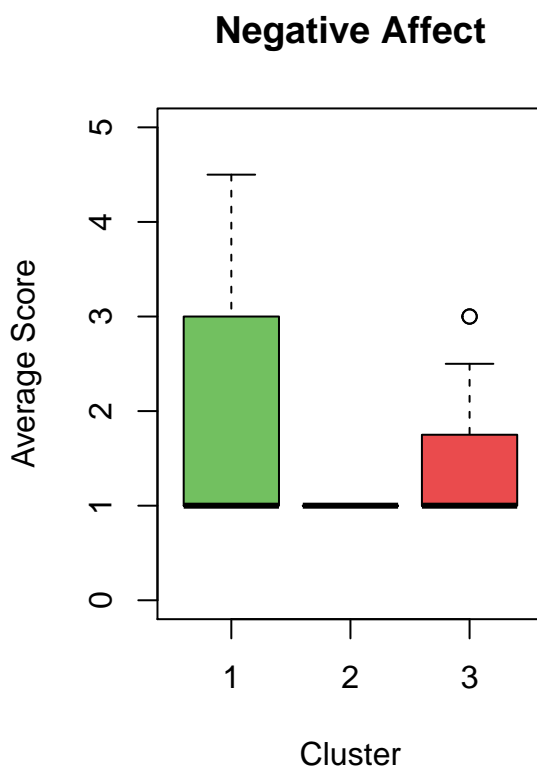
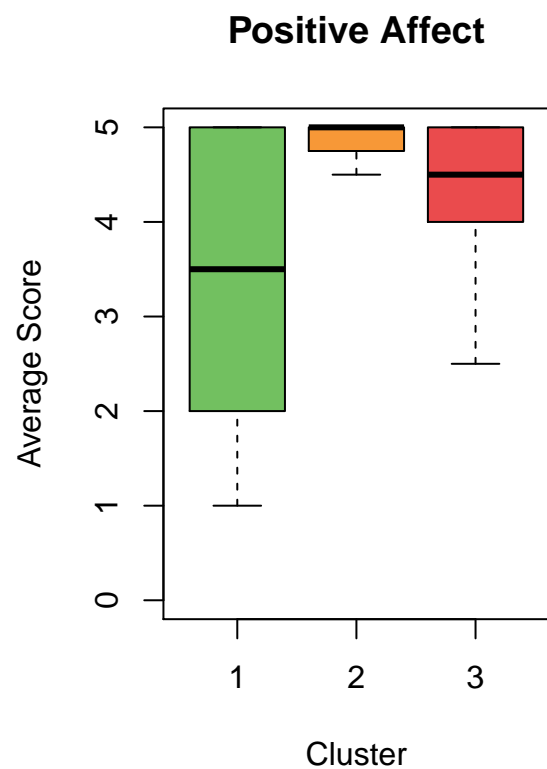
**Age Group Breakdown by Cluster  
for Oculus Rift VR Users**



## In-game Components - Oculus Go

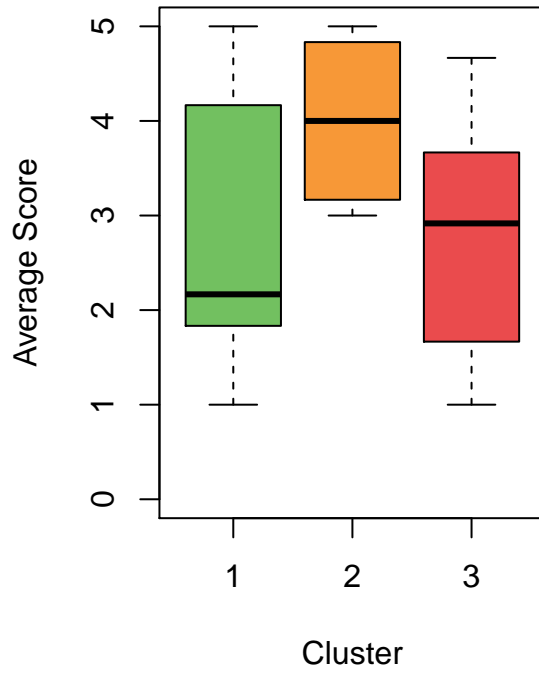




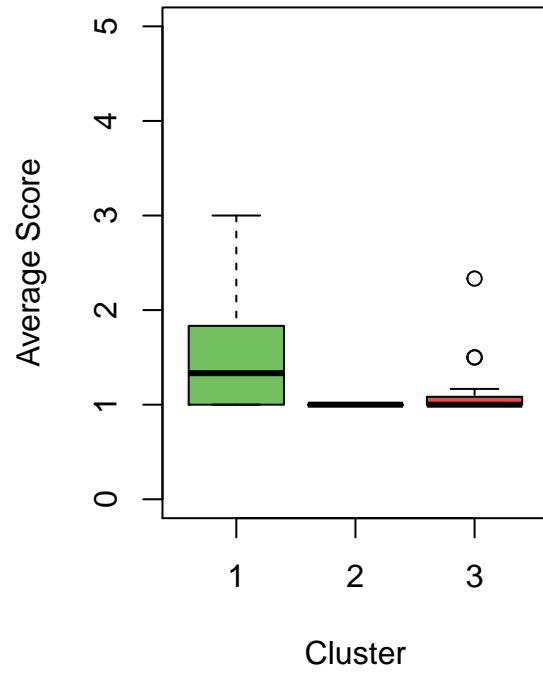


## Post-game Components - Oculus Go

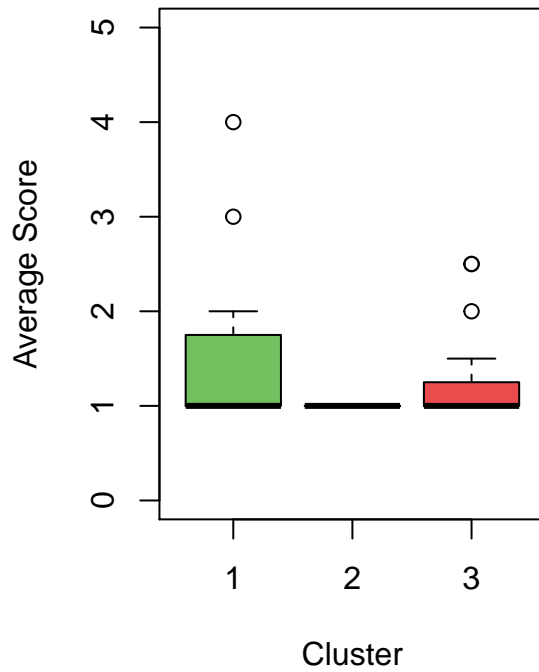
**Positive Experience**



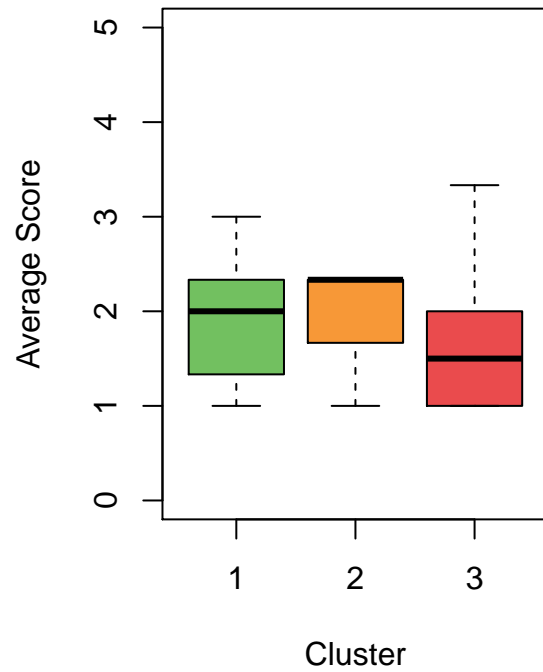
**Negative Experience**



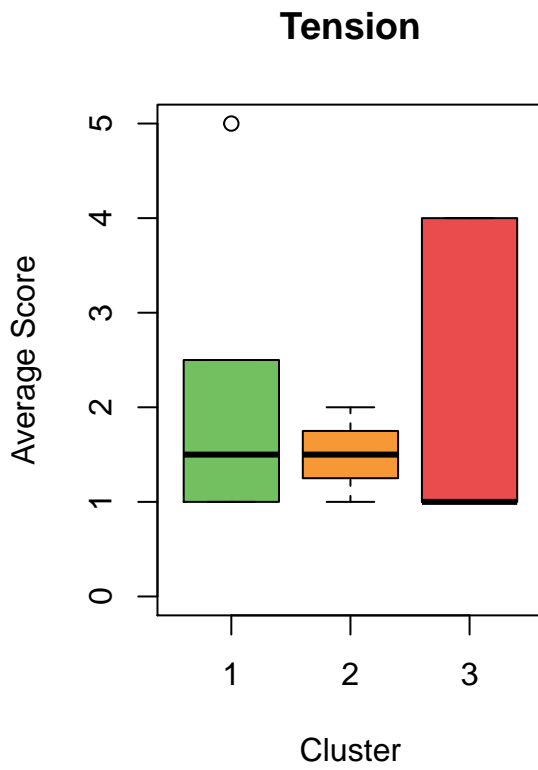
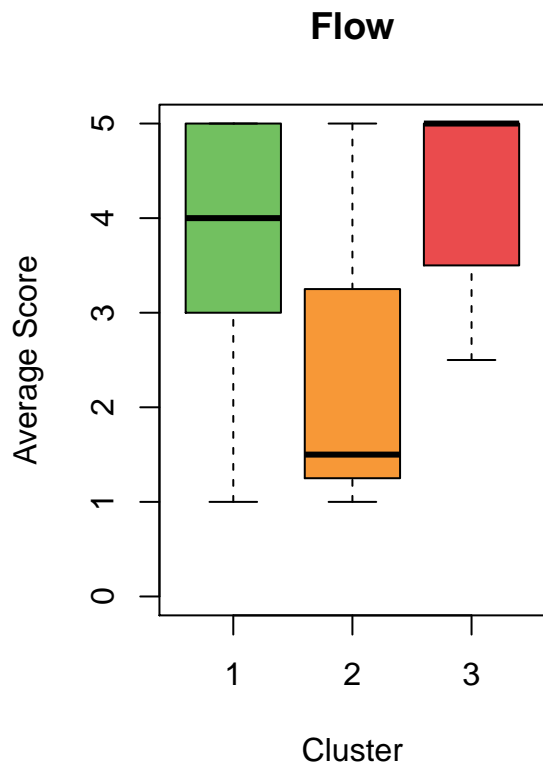
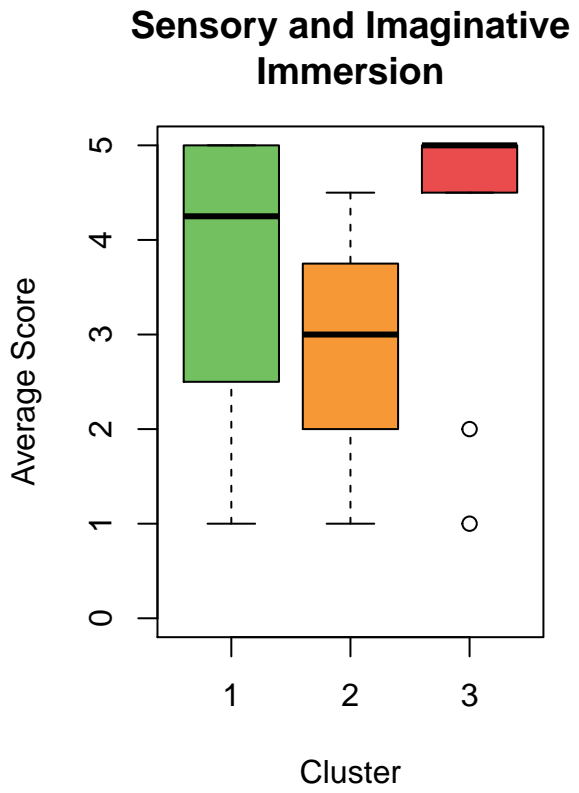
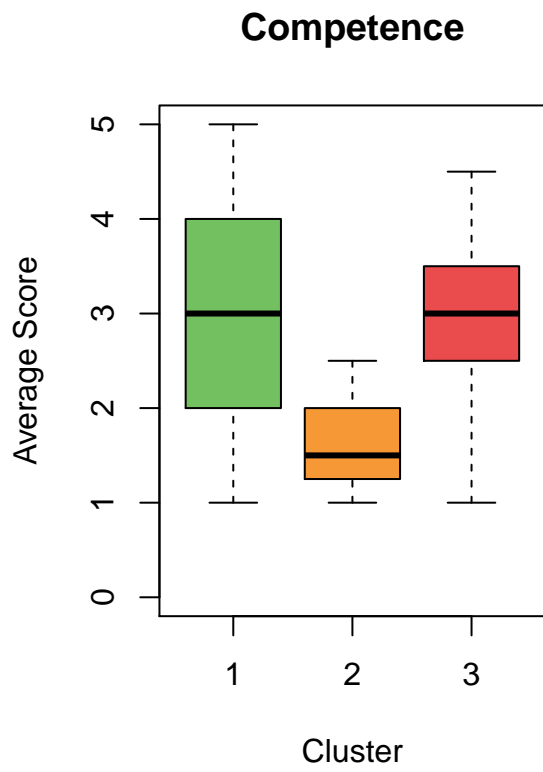
**Tiredness**

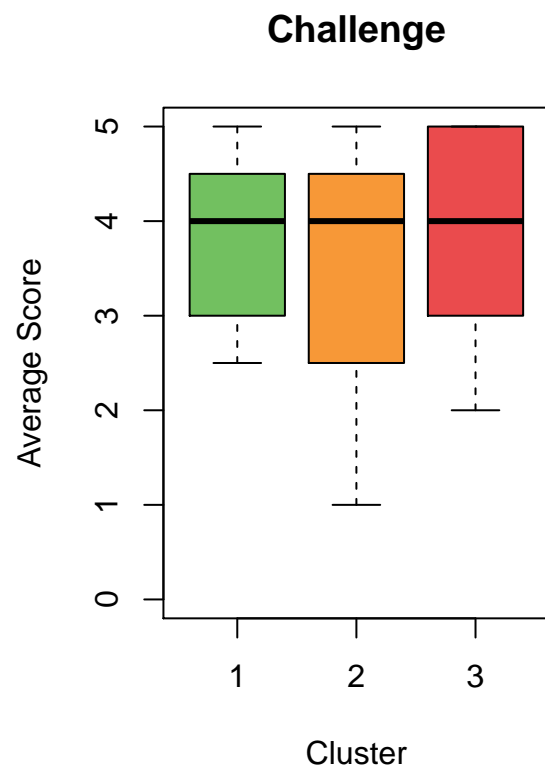
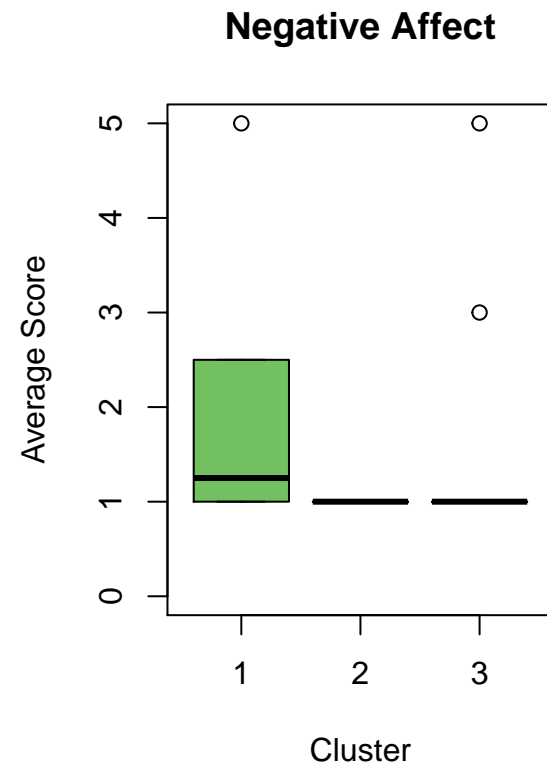
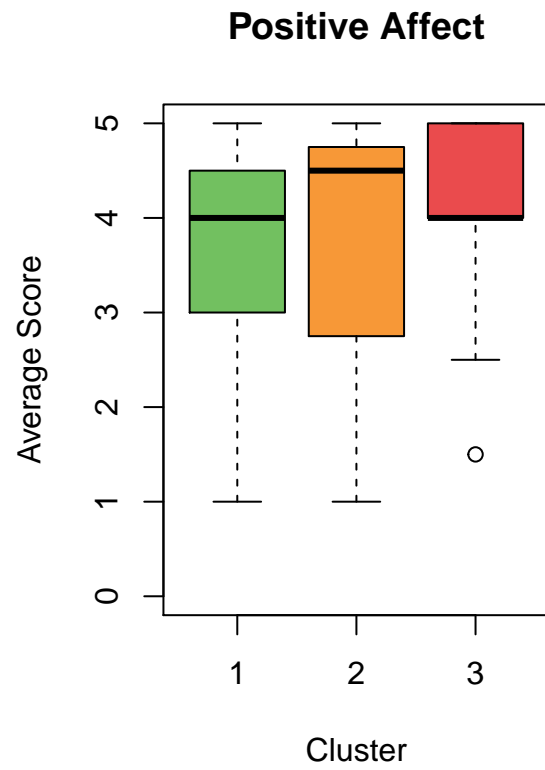


**Returning to Reality**



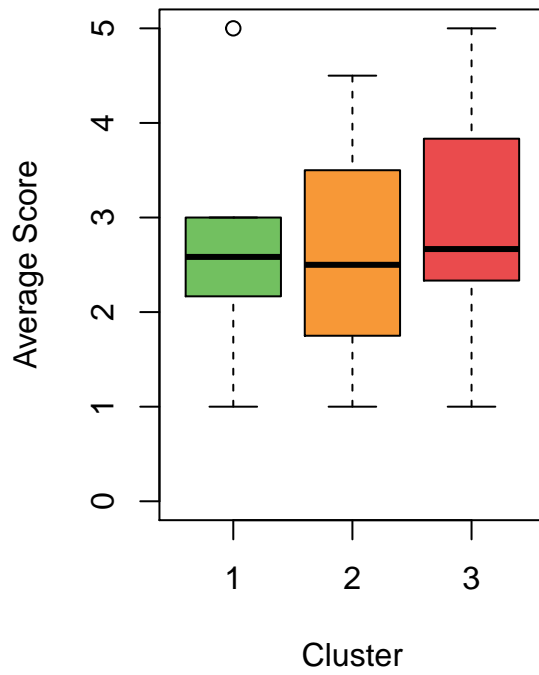
## In-game Components - Oculus Rift



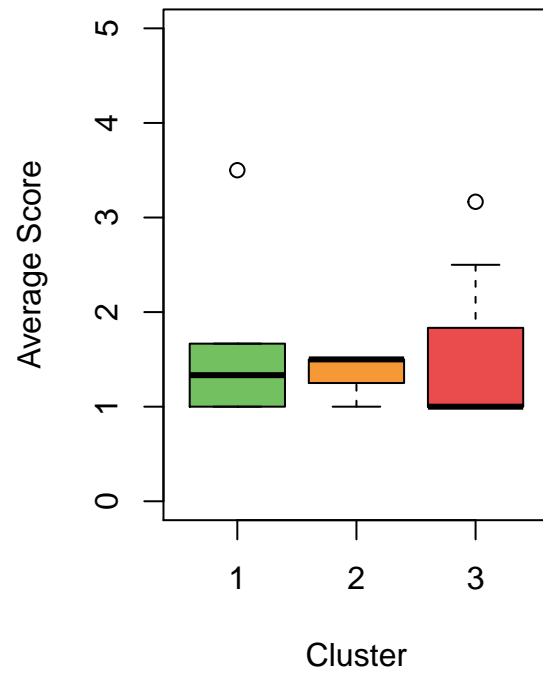


## Post-game Components - Oculus Rift

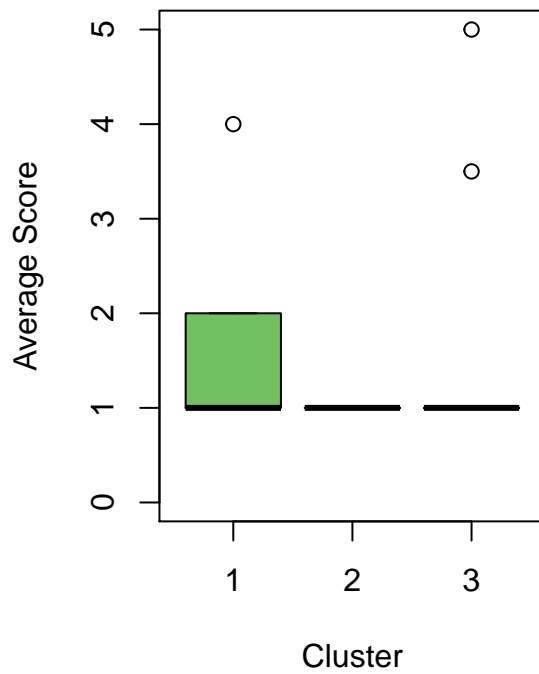
**Positive Experience**



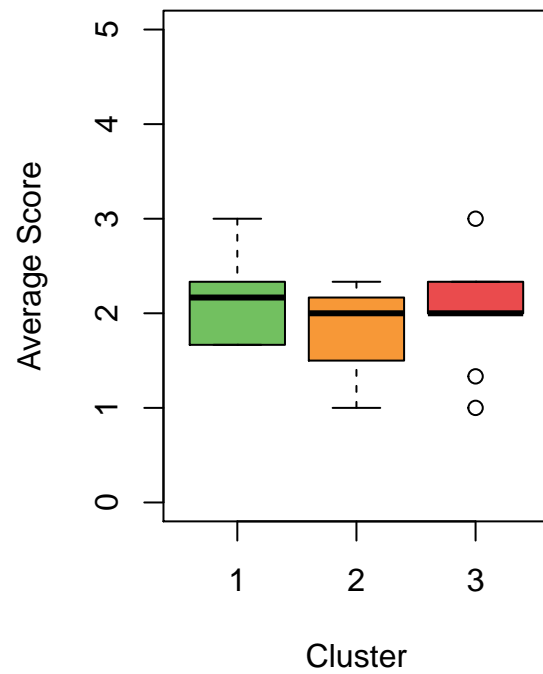
**Negative Experience**



**Tiredness**



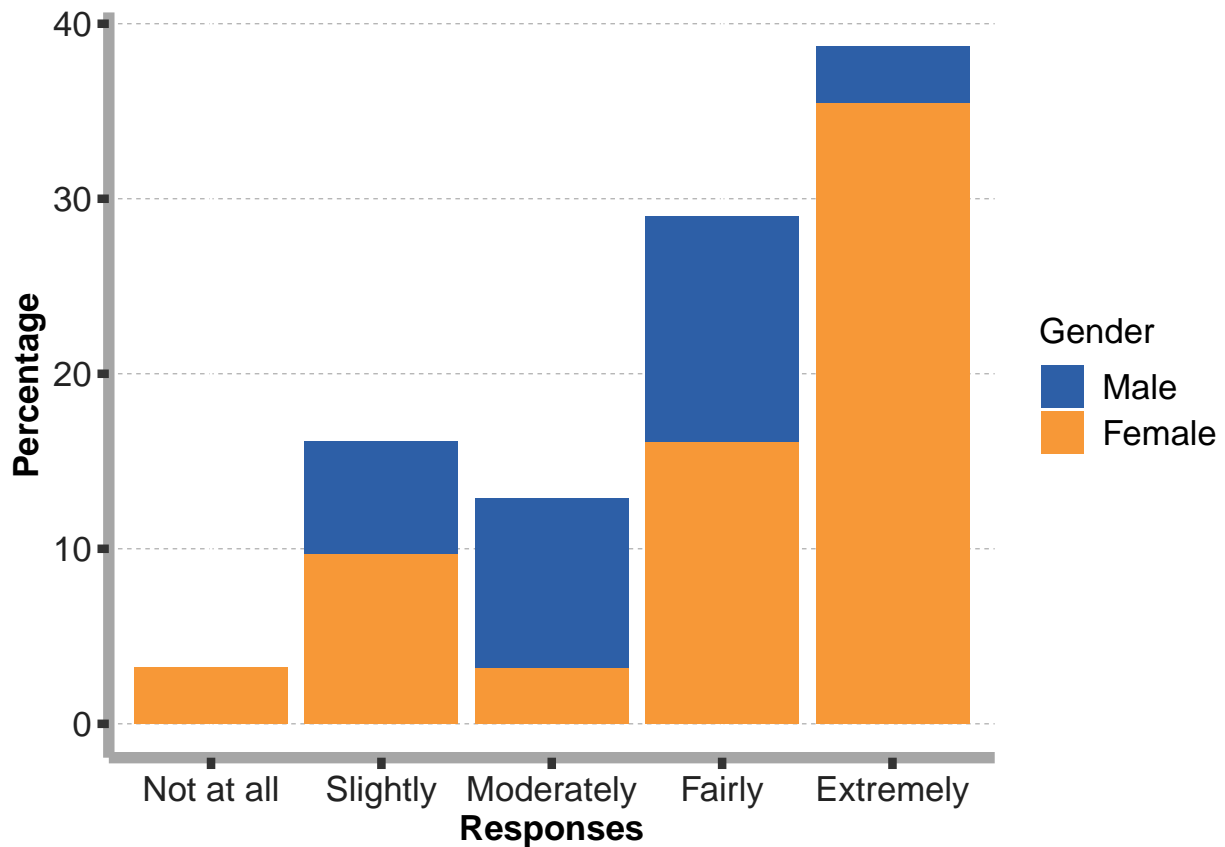
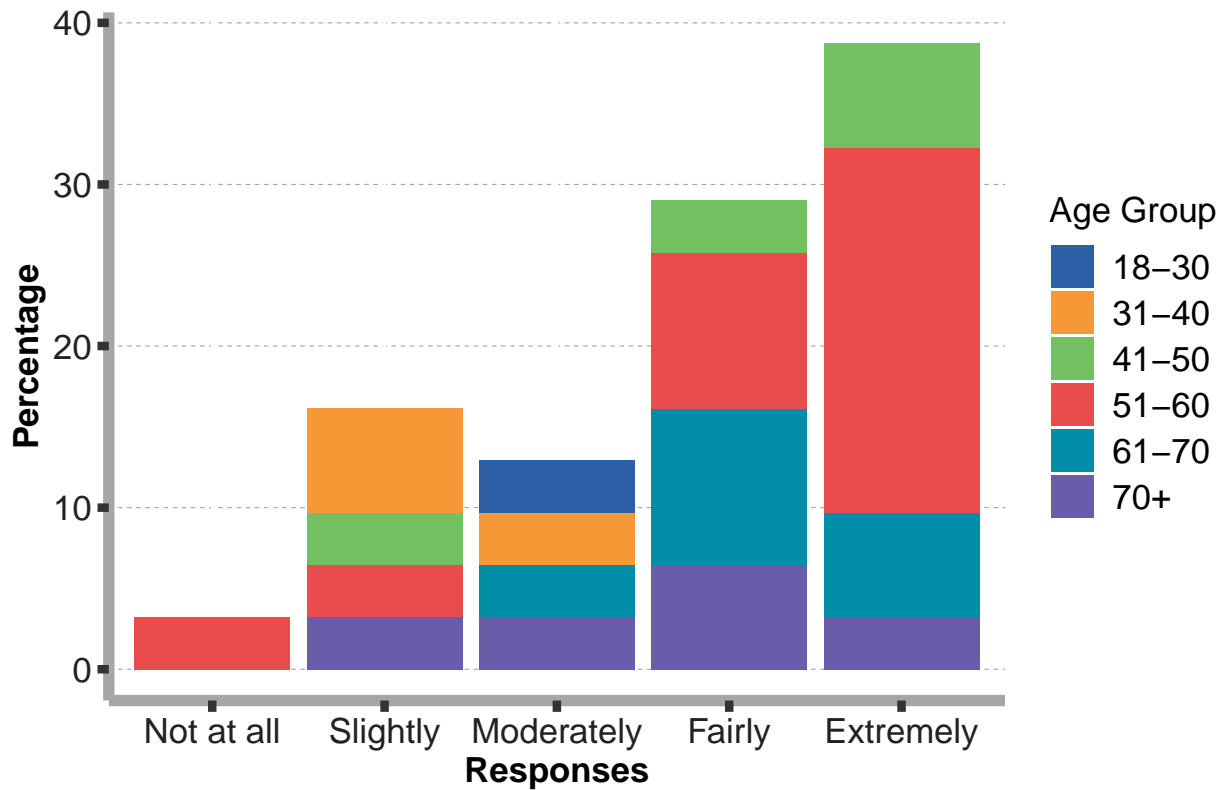
**Returning to Reality**



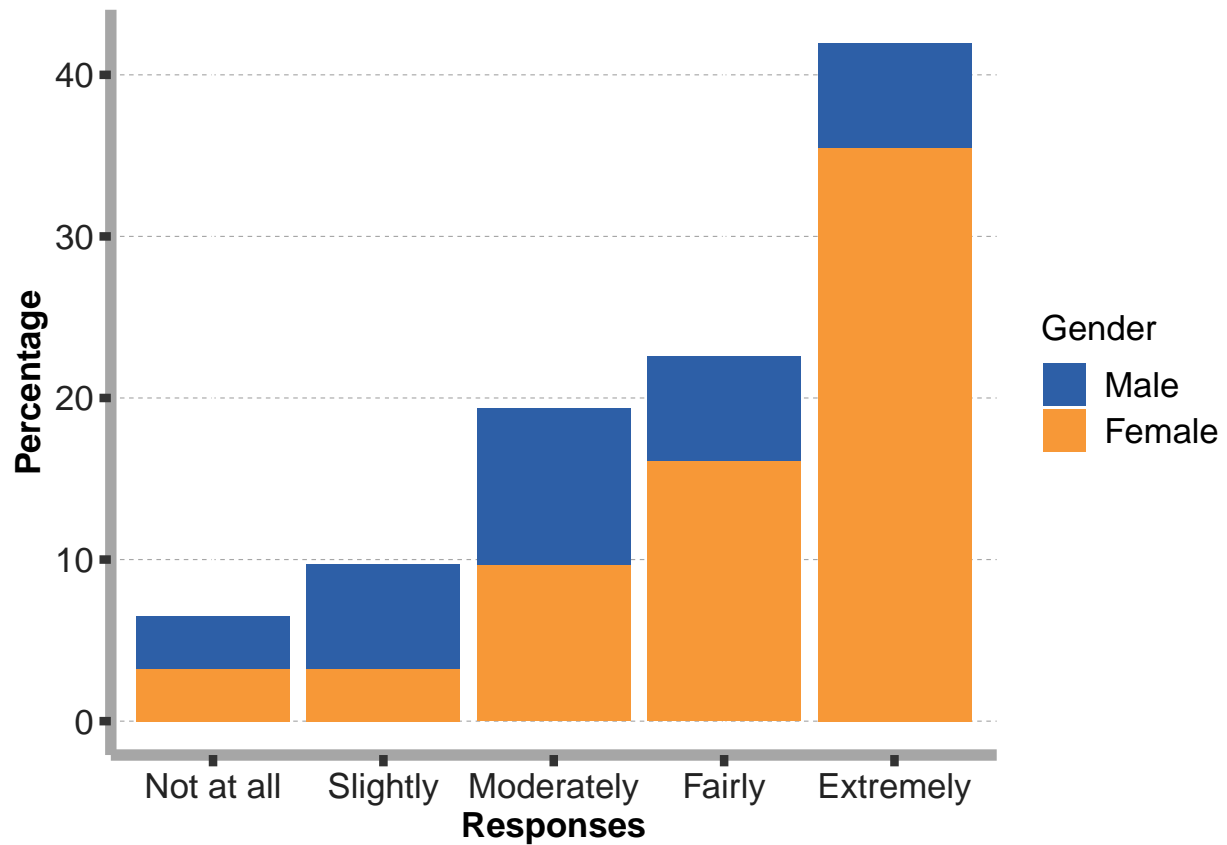
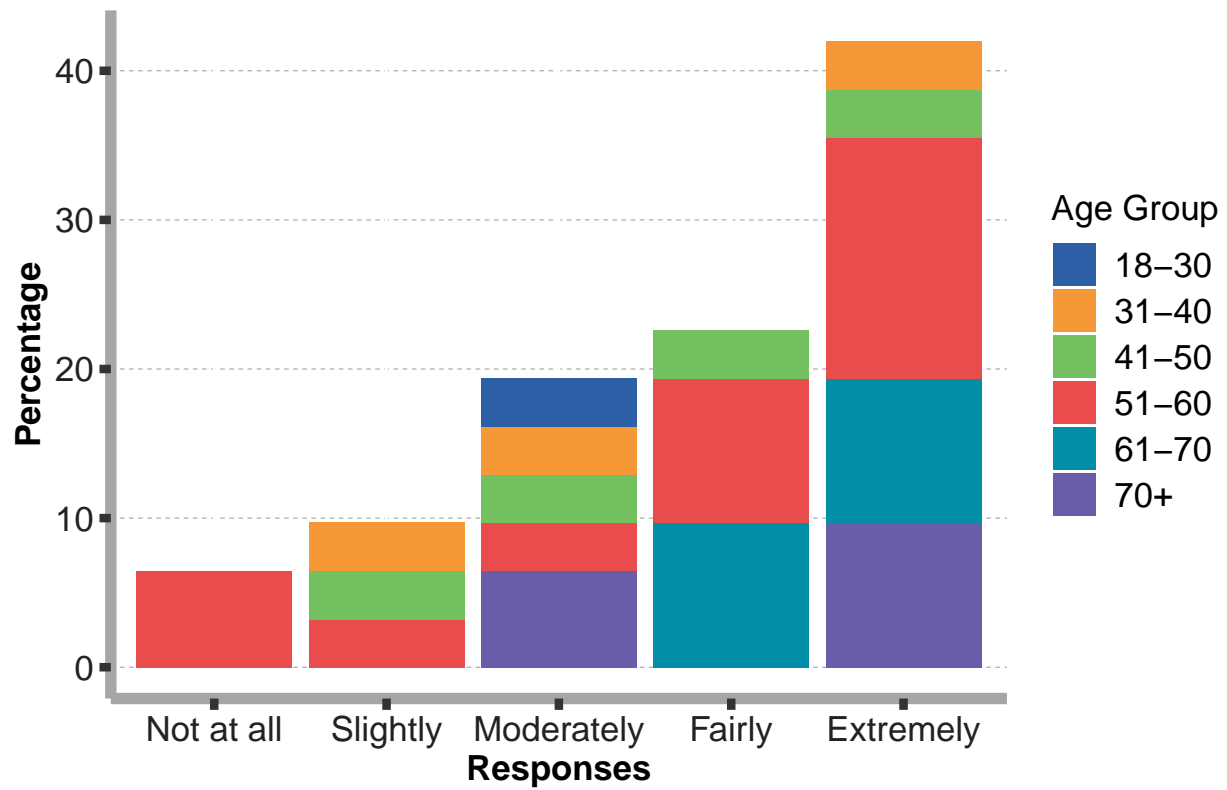


## In-game Module - Oculus Go

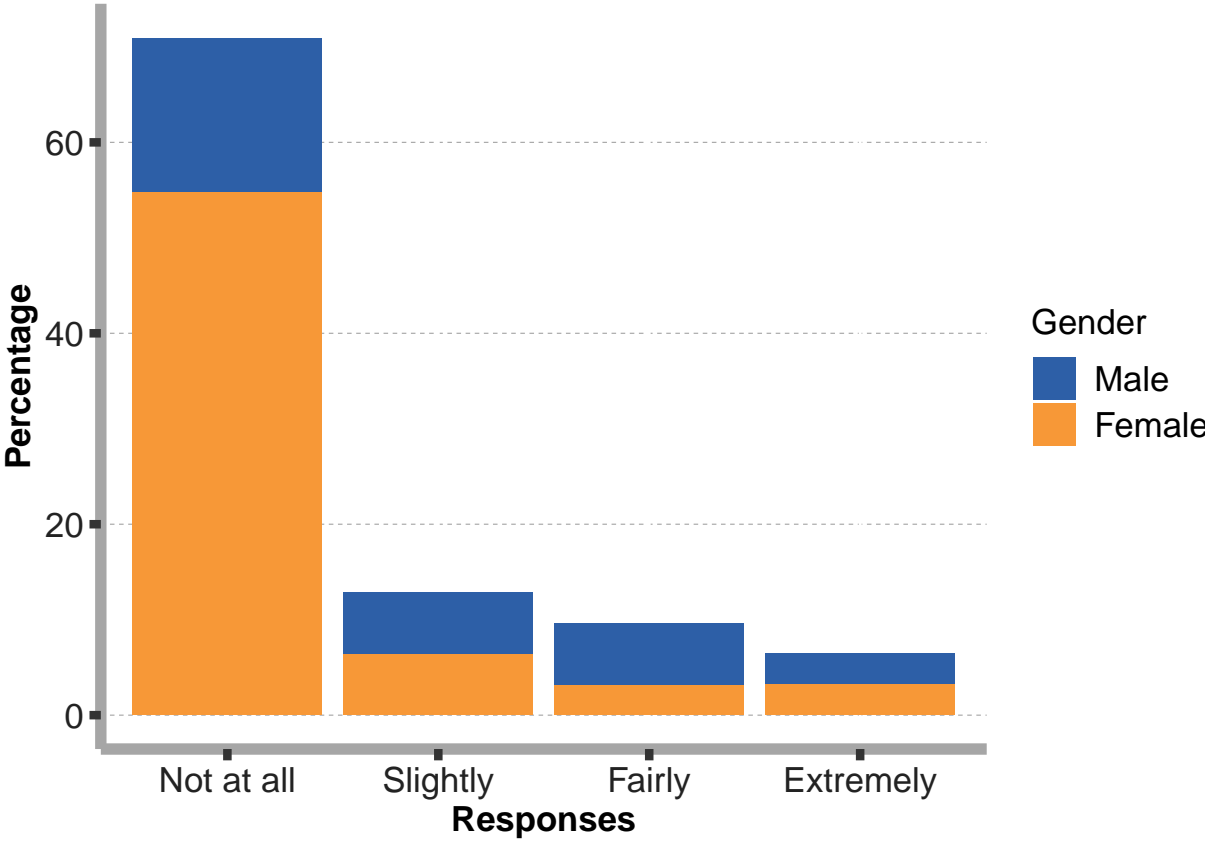
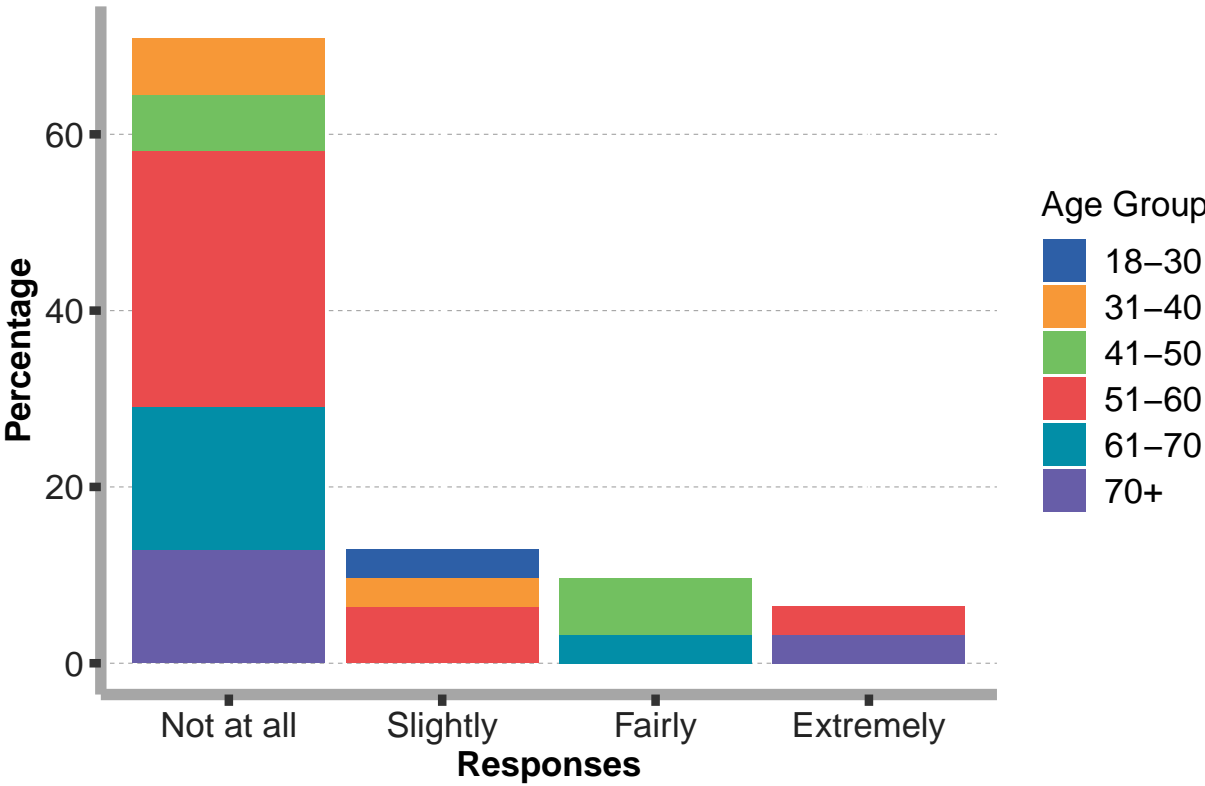
### Q1. I was interested in the game's story



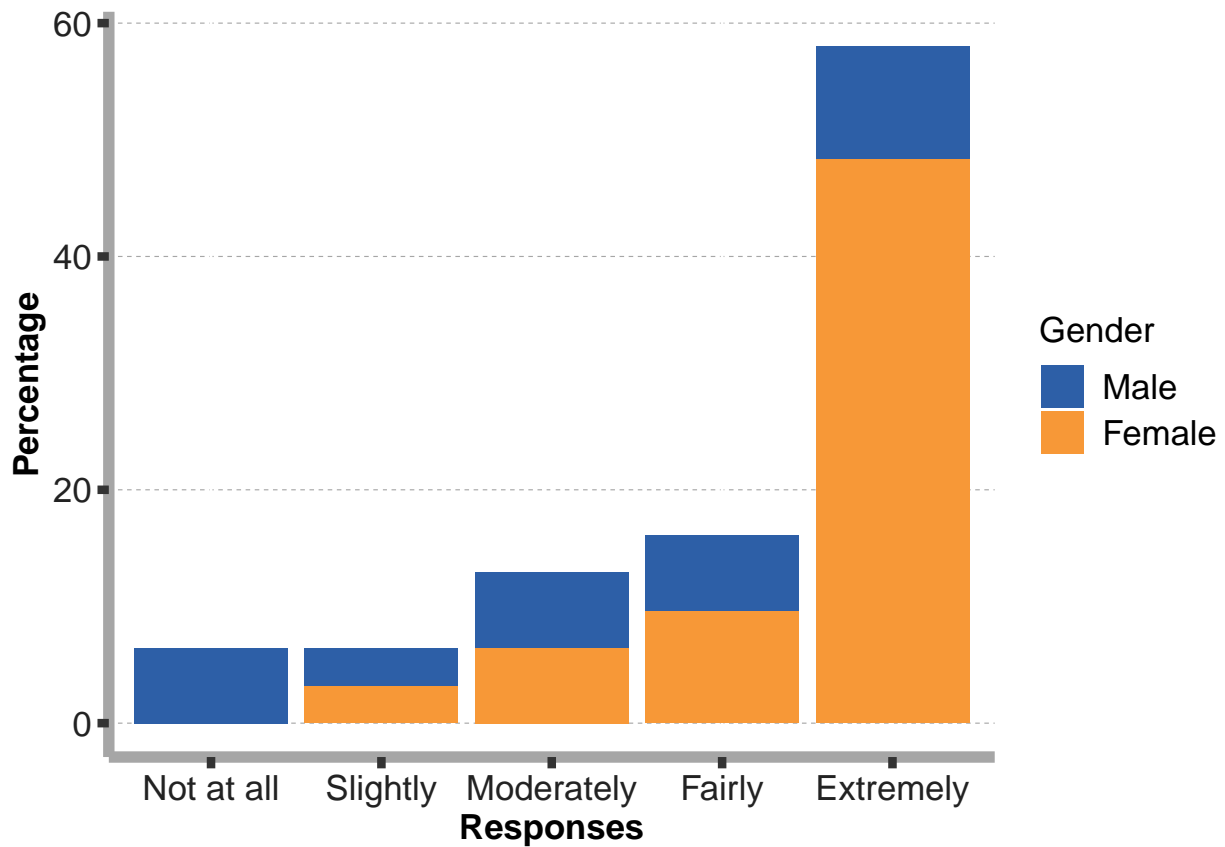
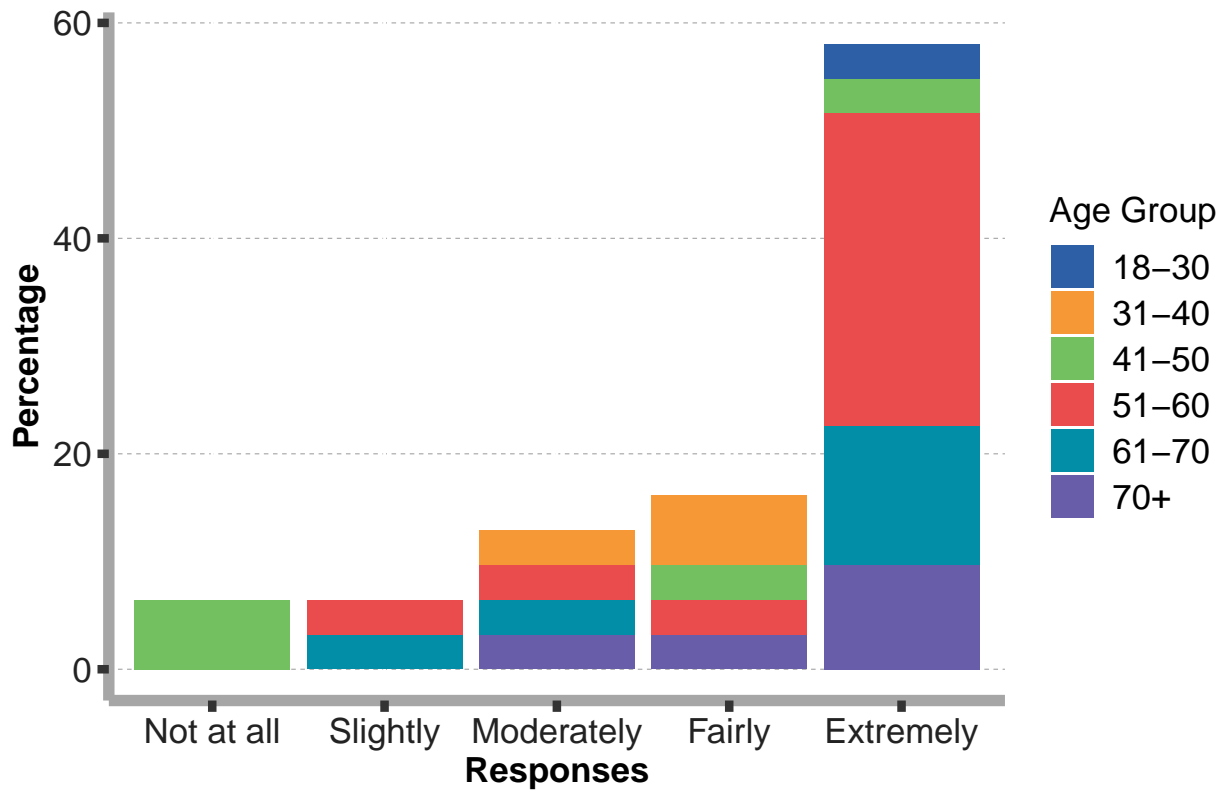
## Q2. I felt successful



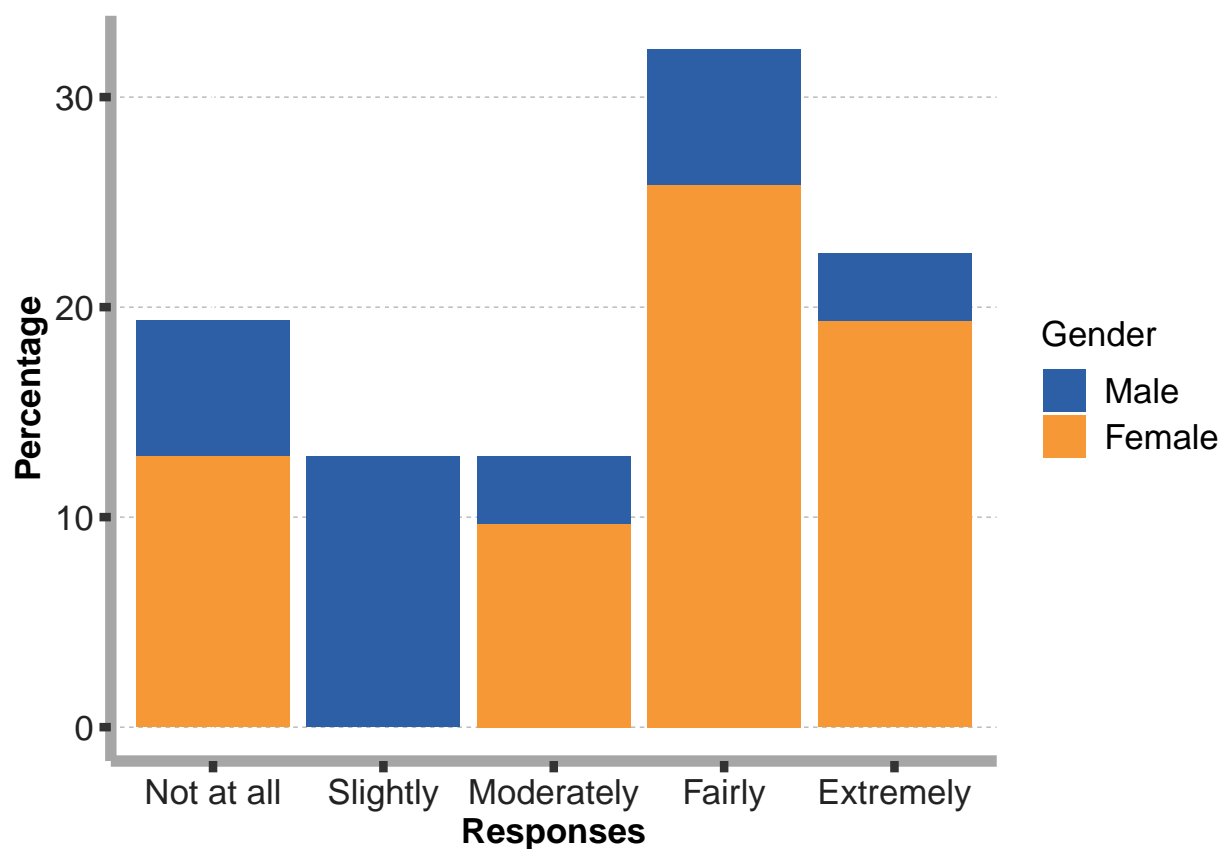
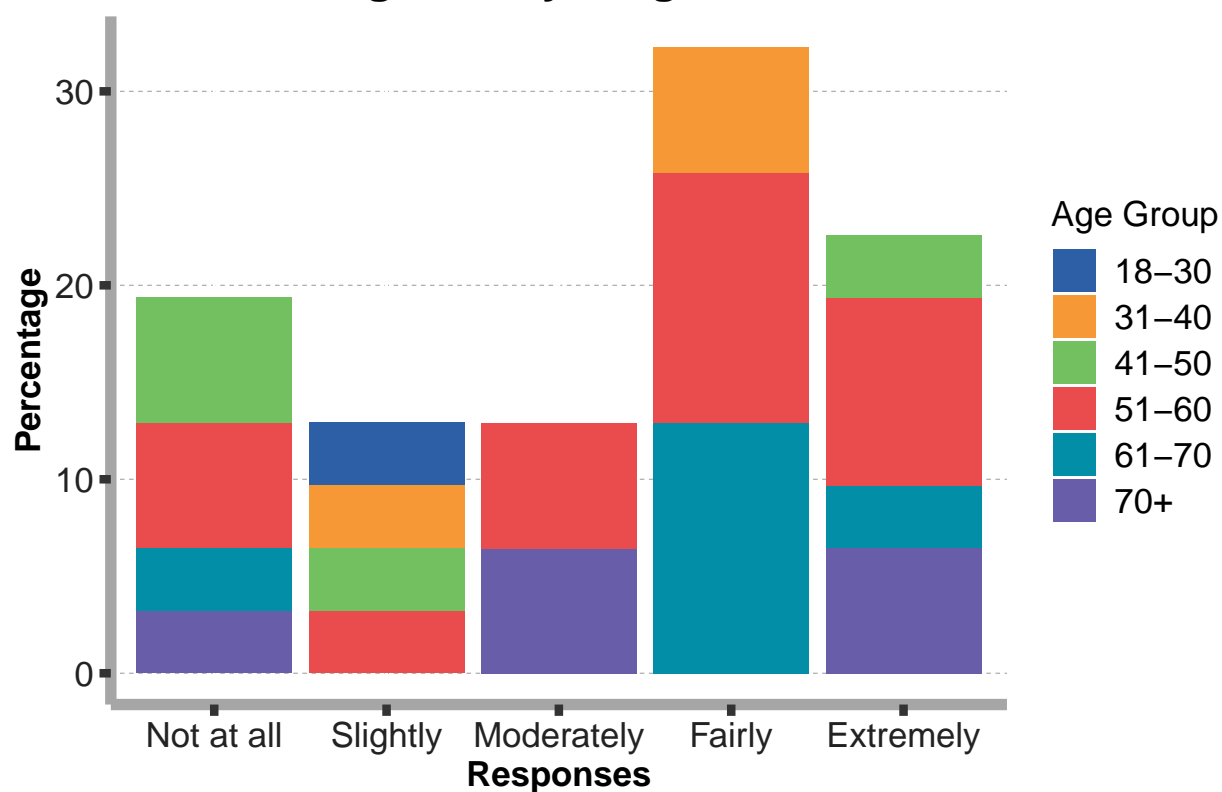
**Q3. I felt bored**



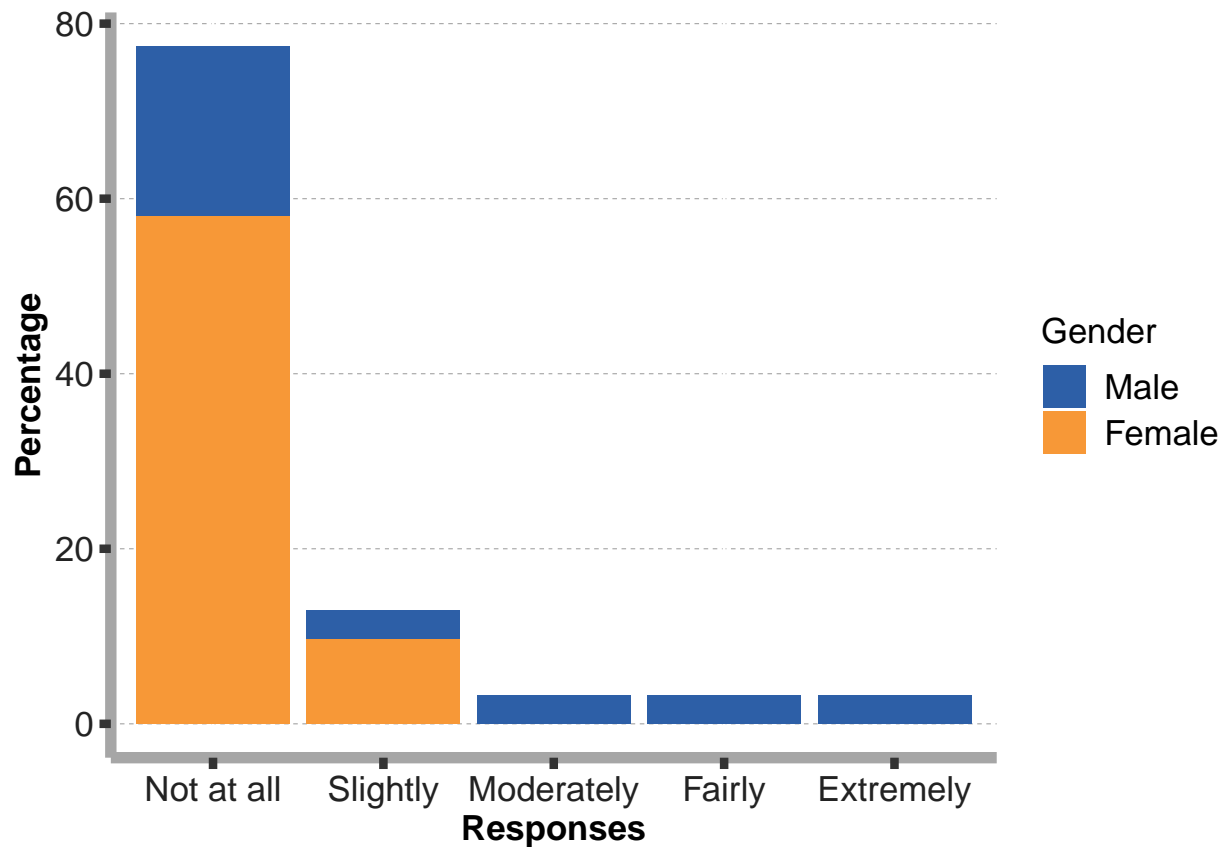
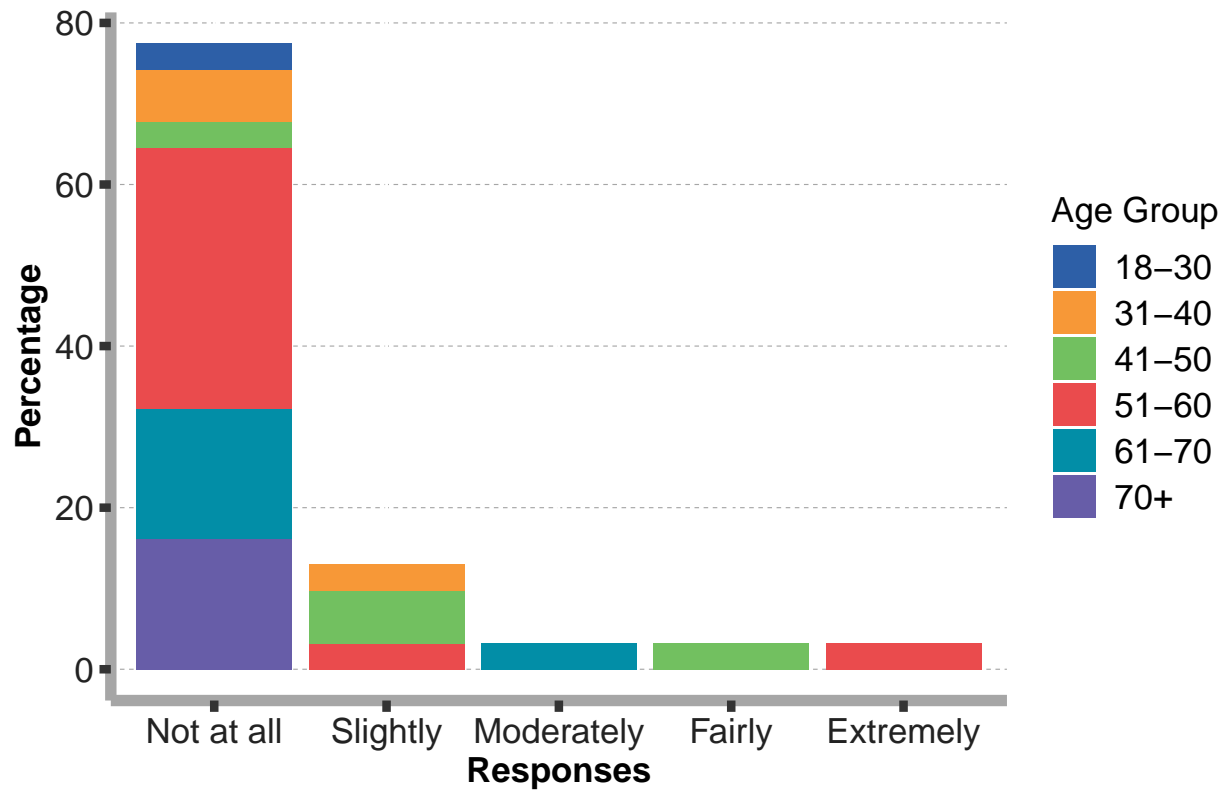
### Q4. I found it impressive



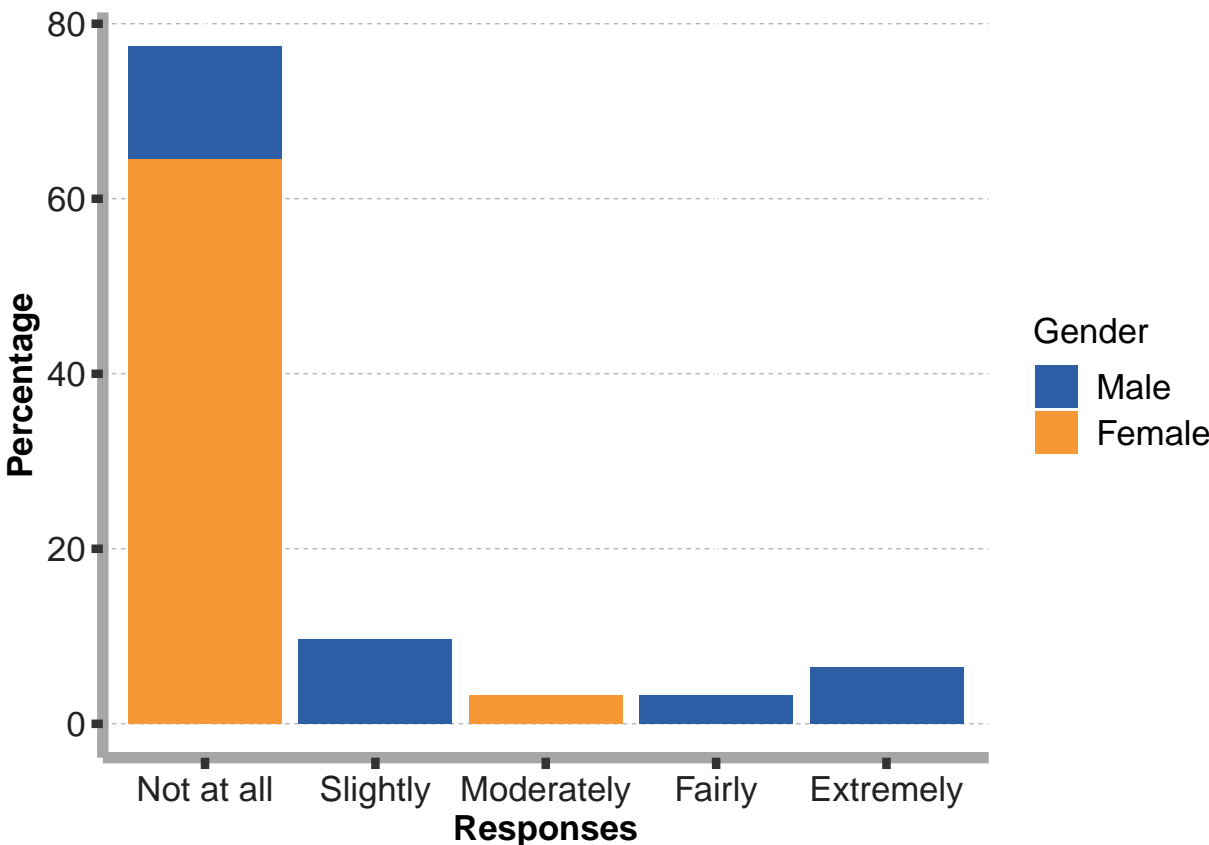
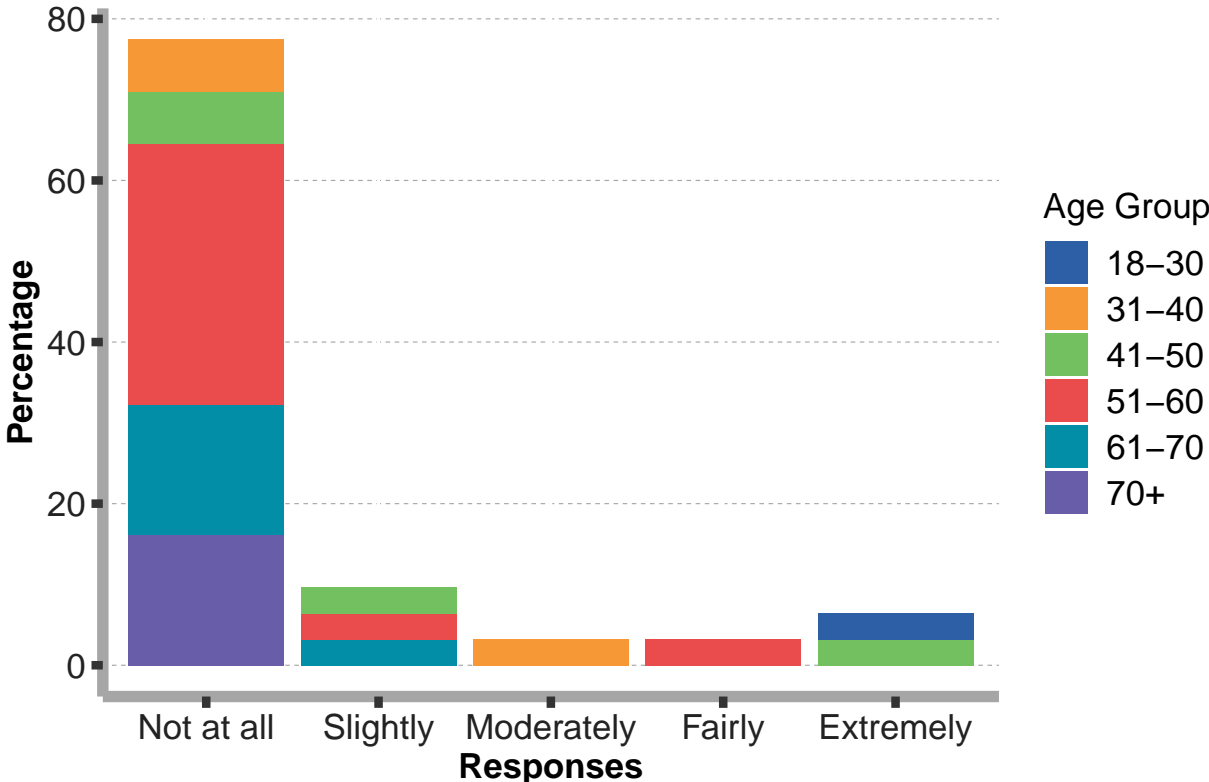
### Q5. I forgot everything around me



## Q6. I felt frustrated

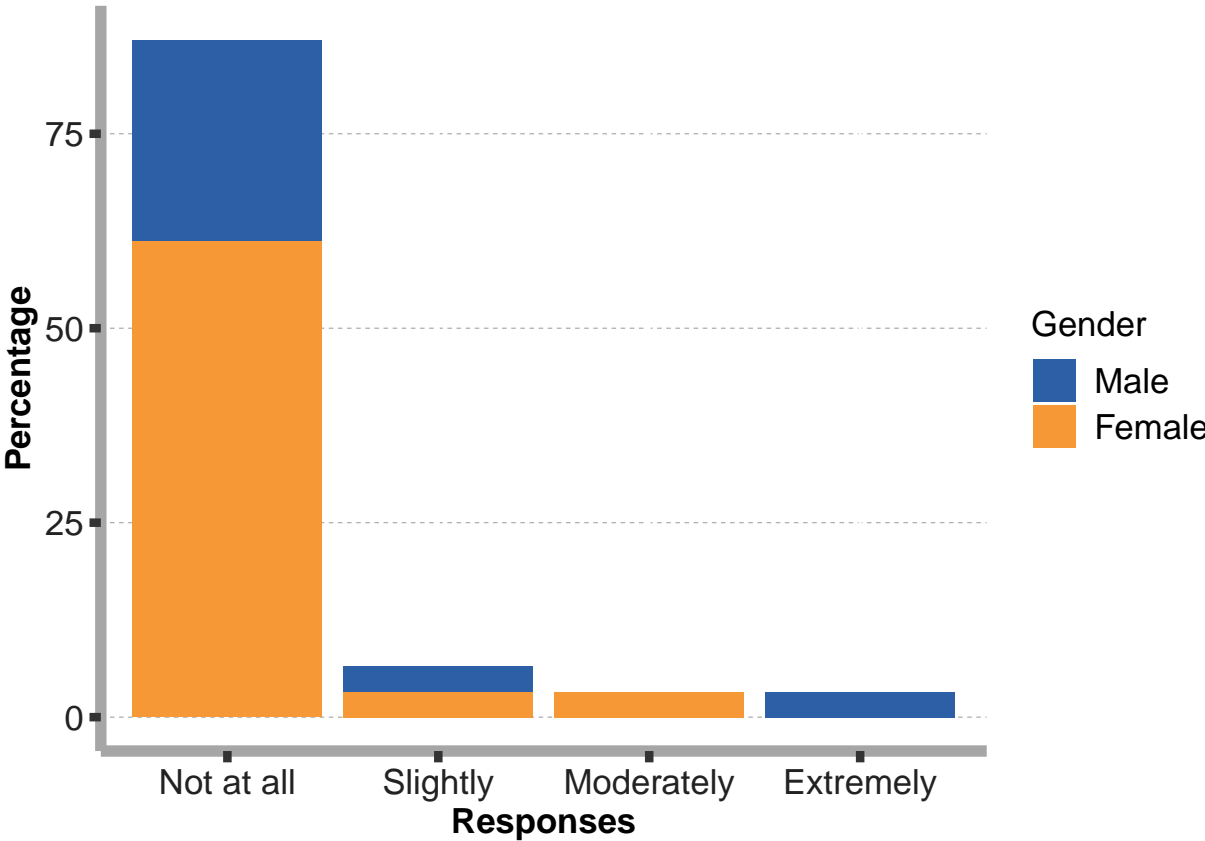
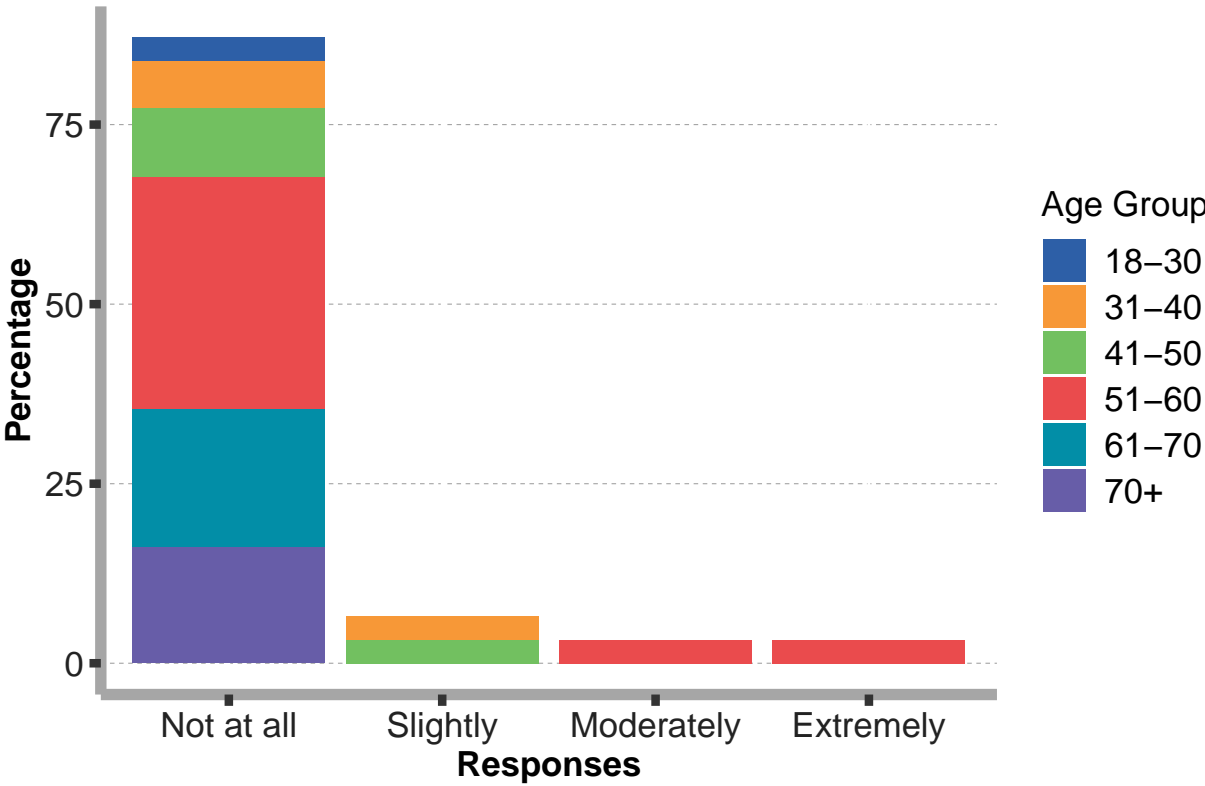


**Q7. I found it tiresome**

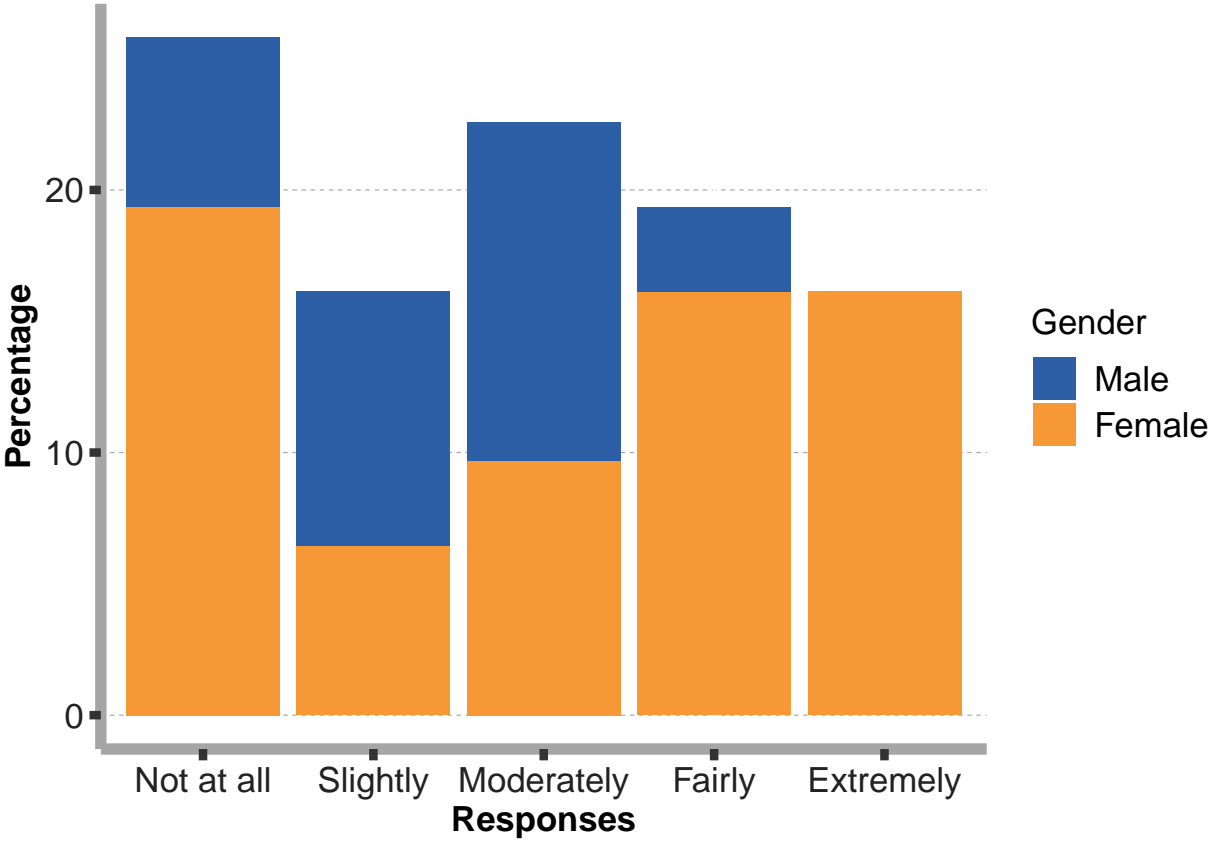
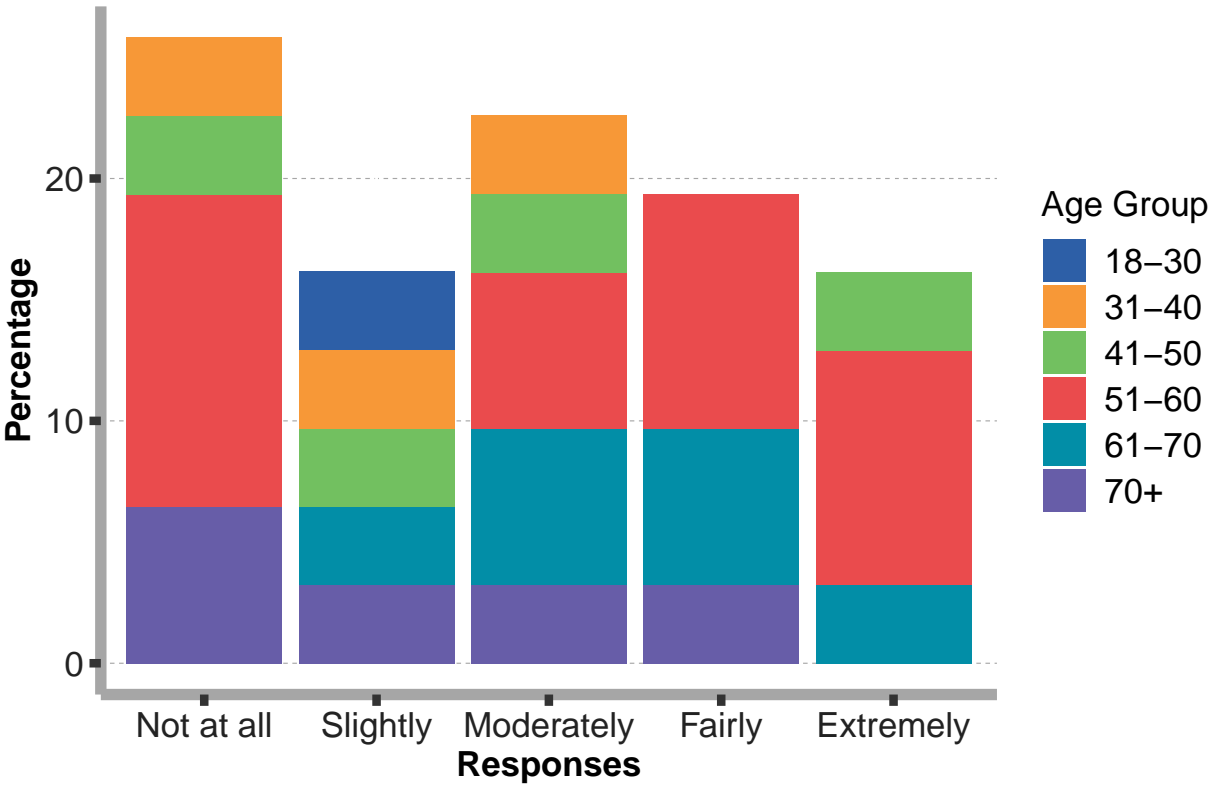




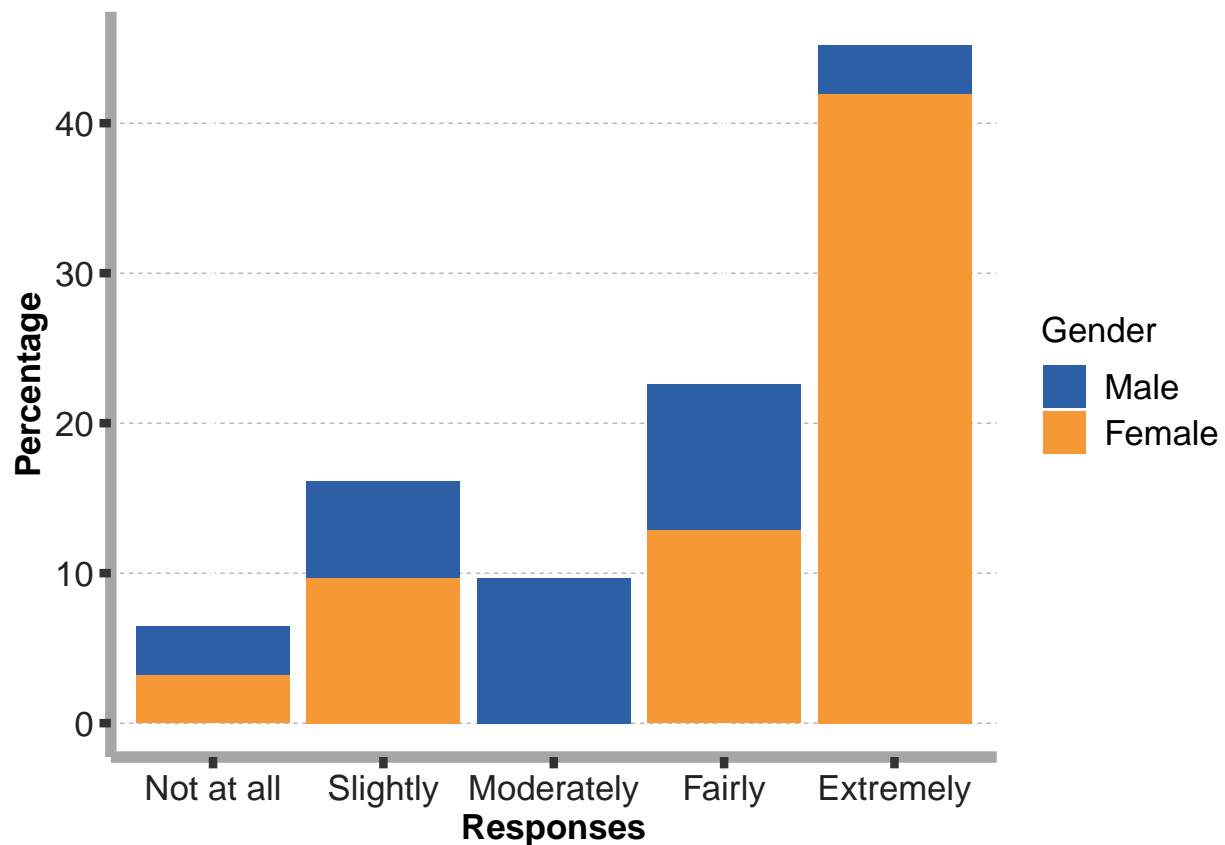
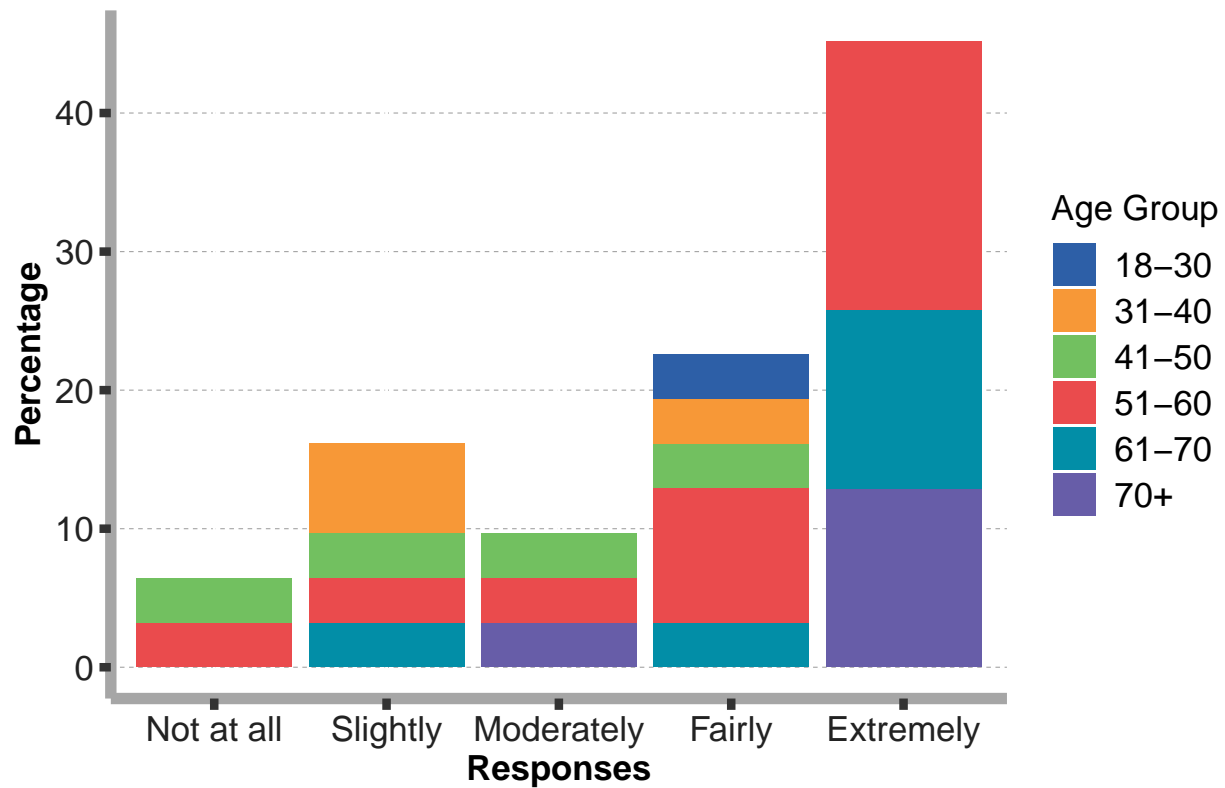
Q8. I felt irritable



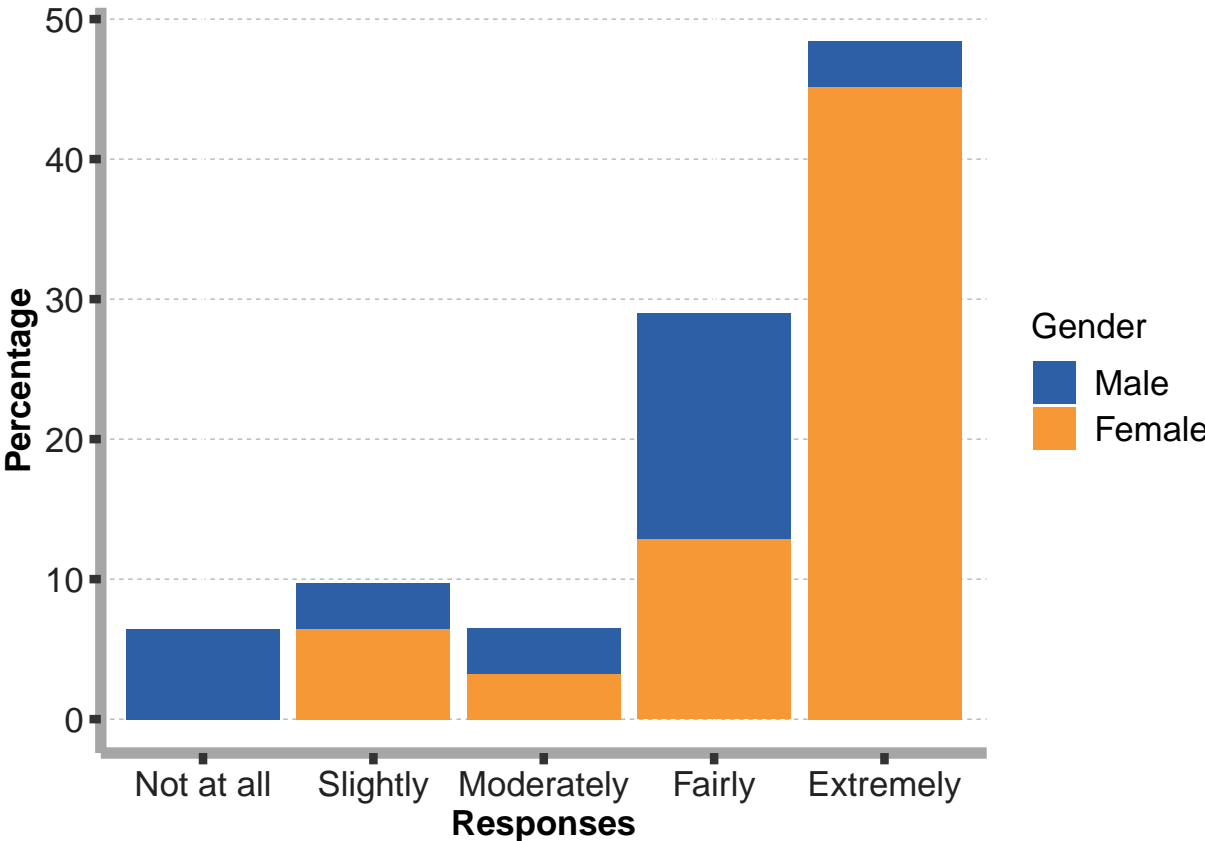
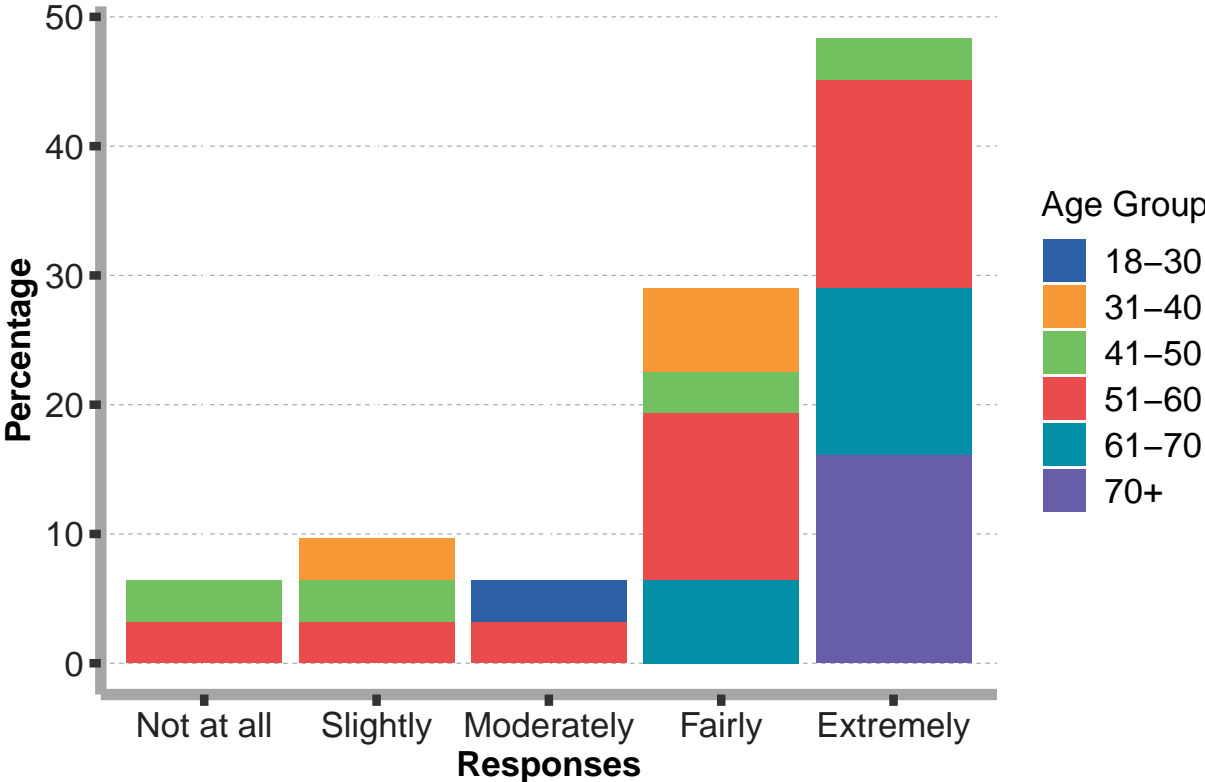
Q9. I felt skillfull



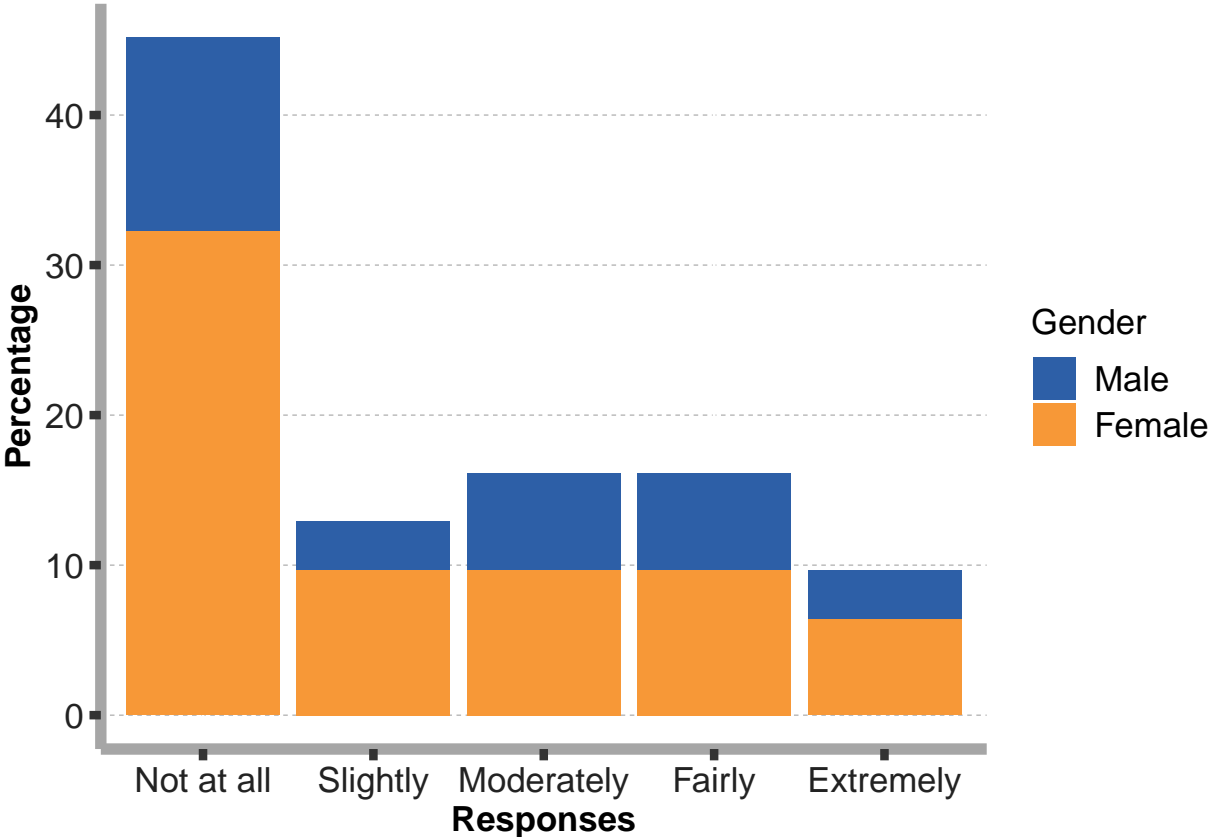
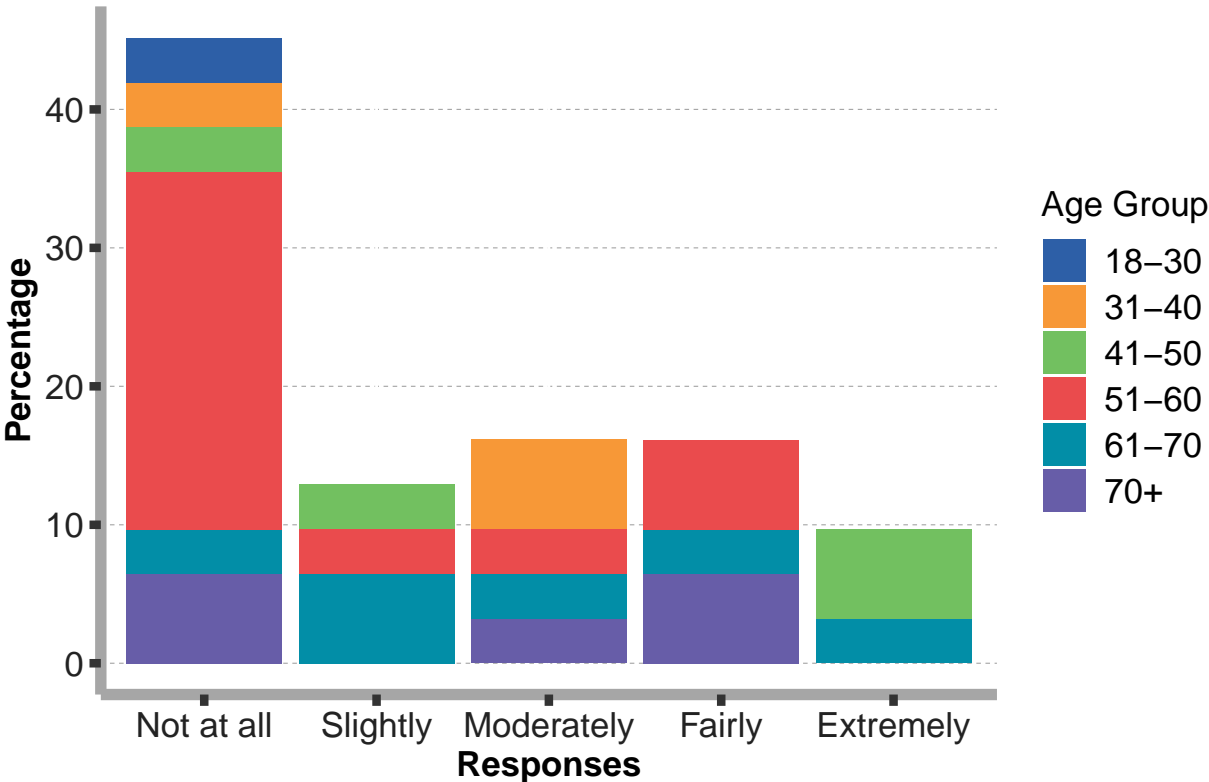
### Q10. I felt completely absorbed



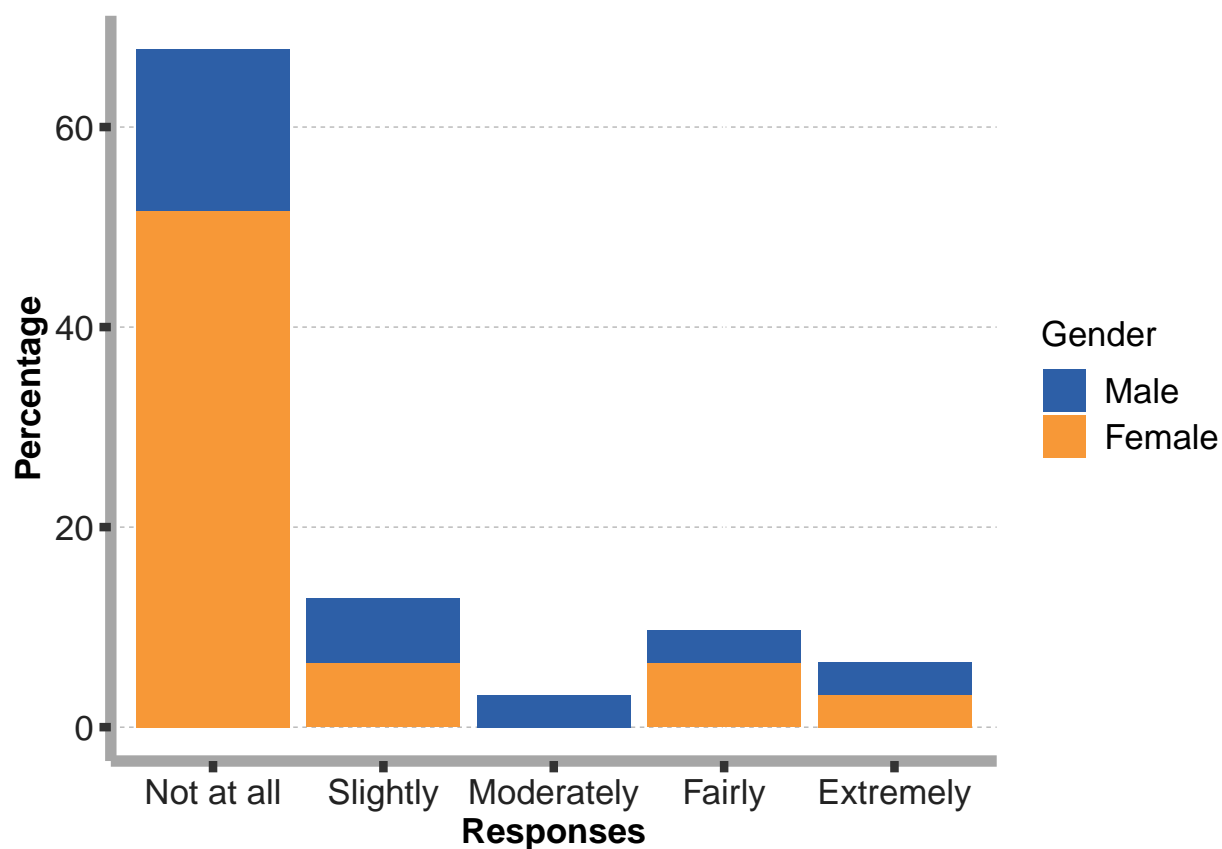
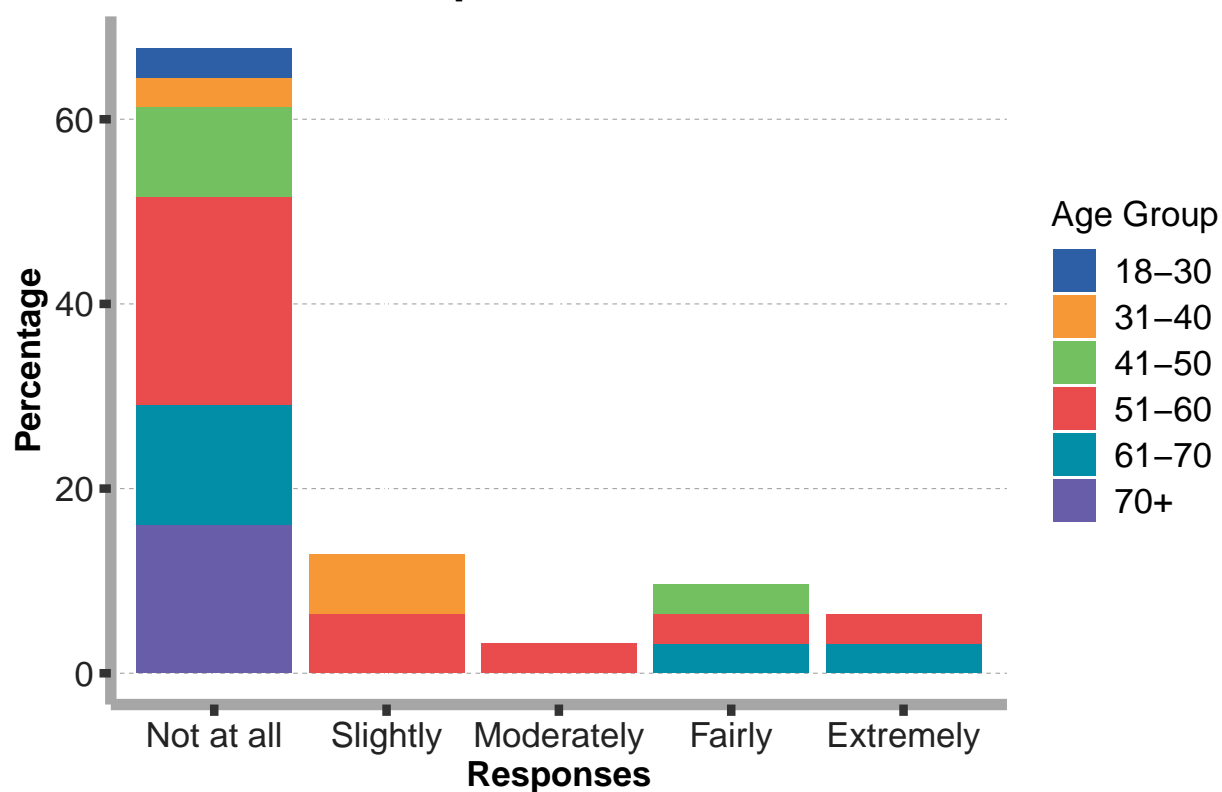
**Q11. I felt content**



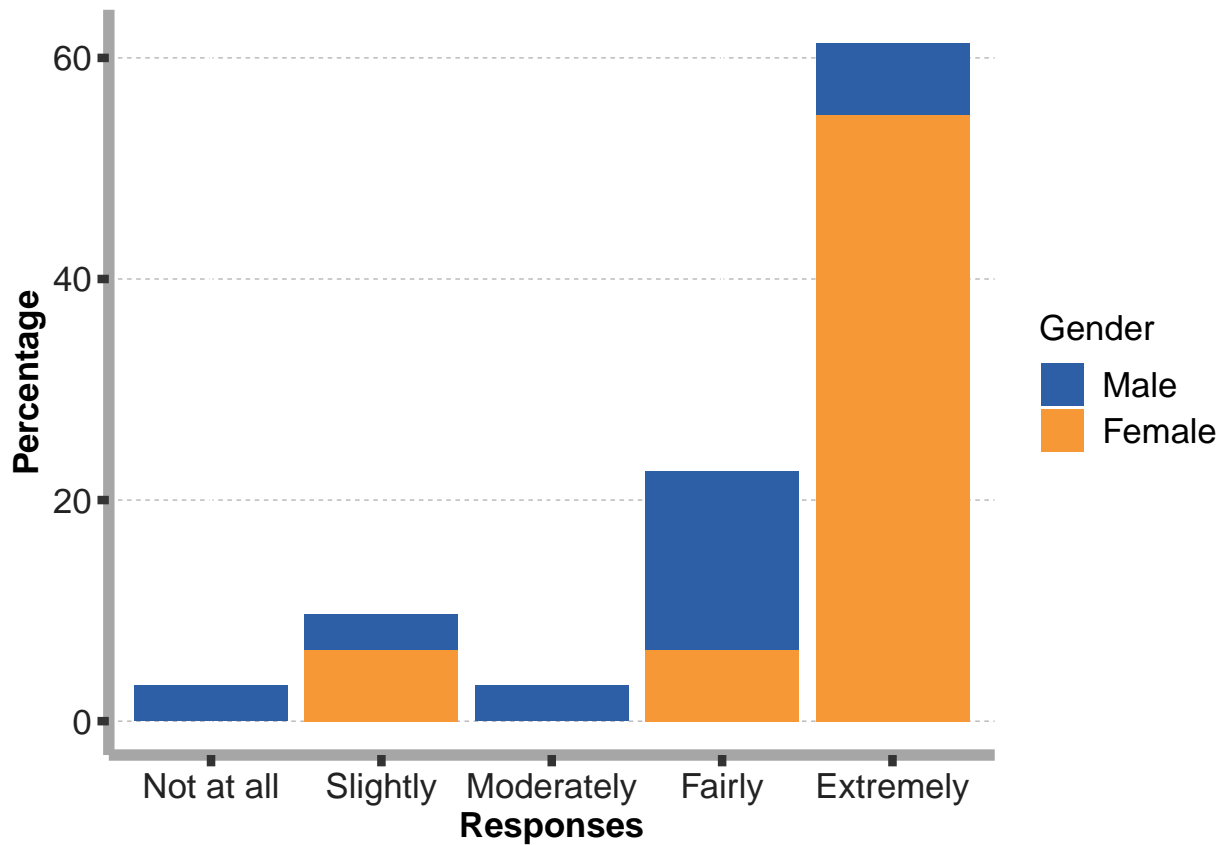
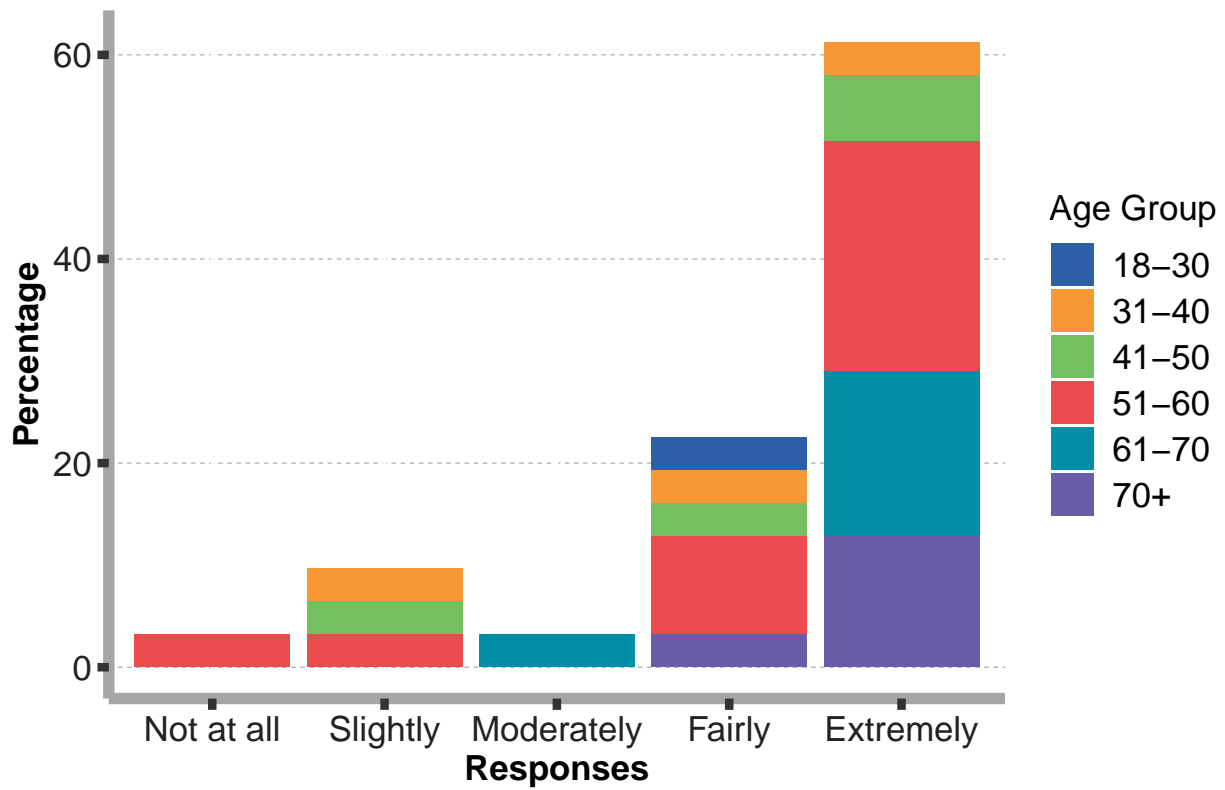
**Q12. I felt challenged**



### Q13. I had to put a lot of effort into it



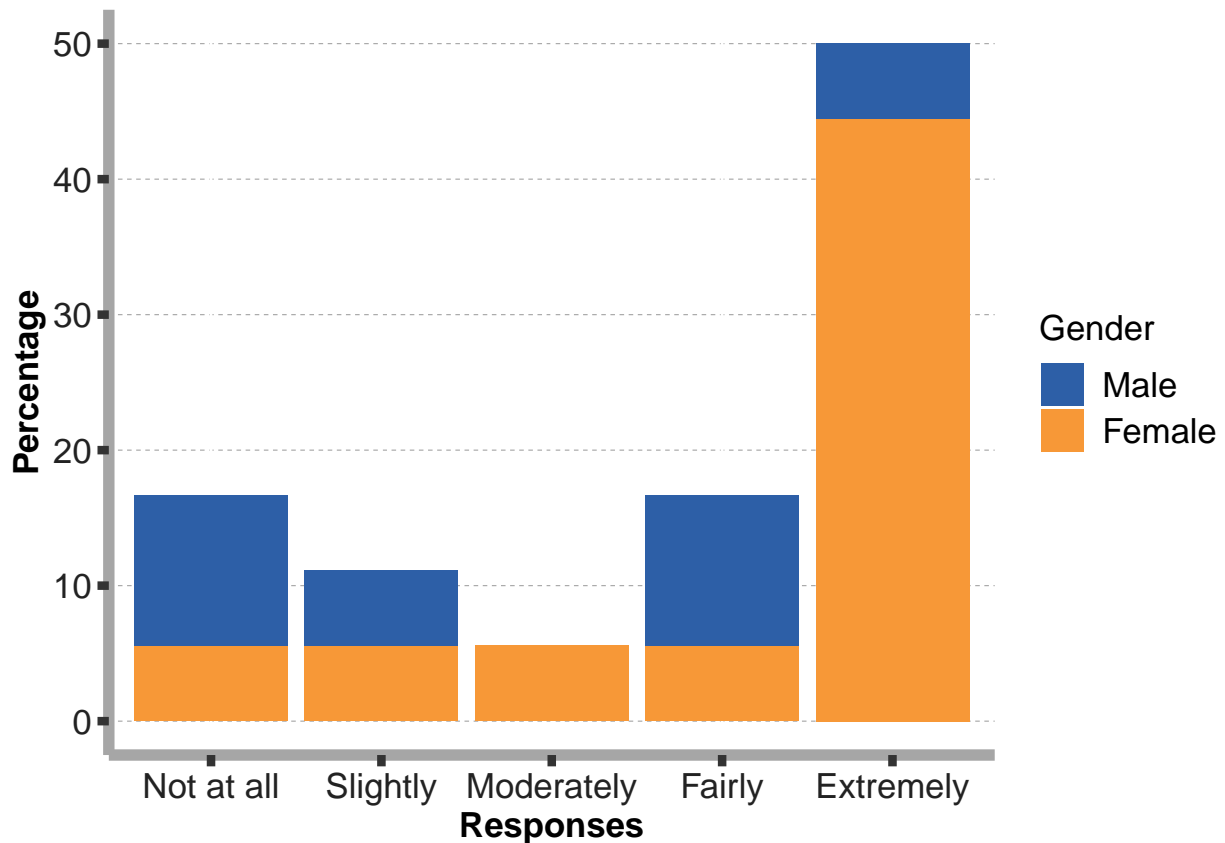
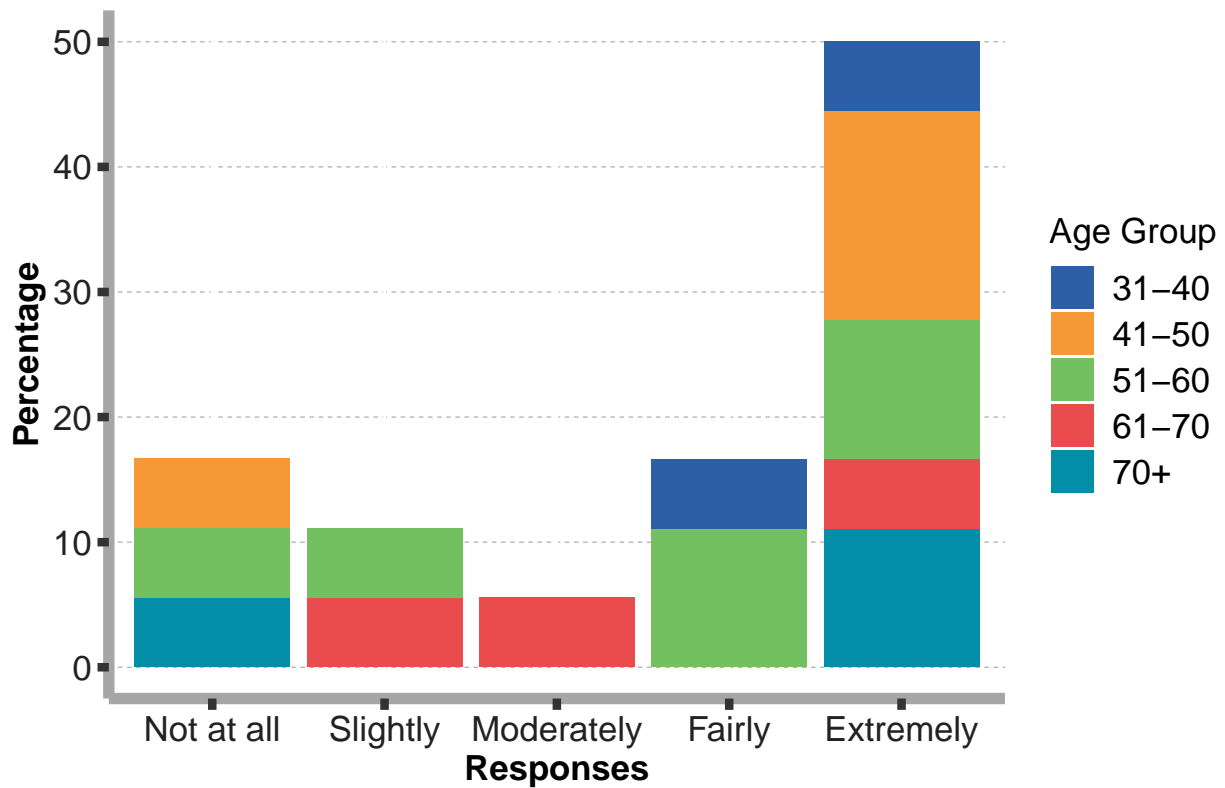
### Q14. I felt good



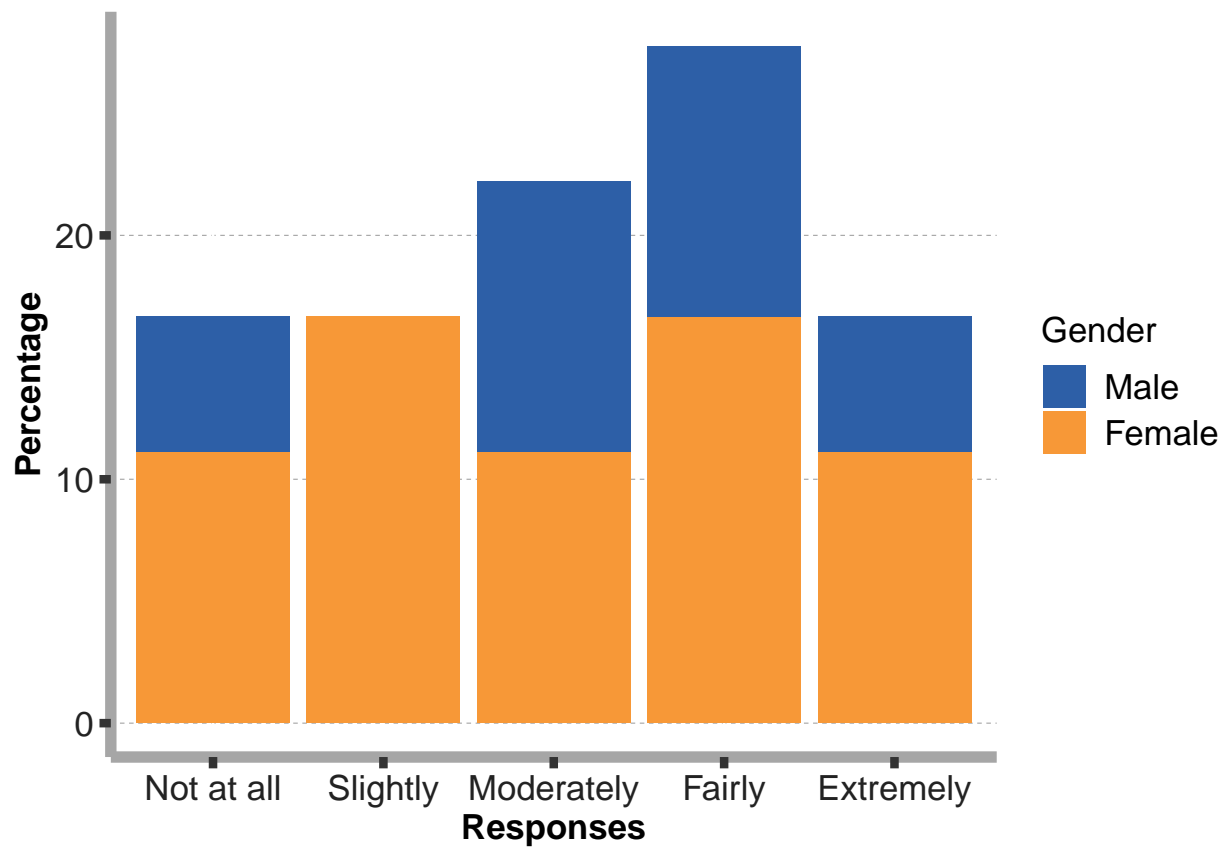
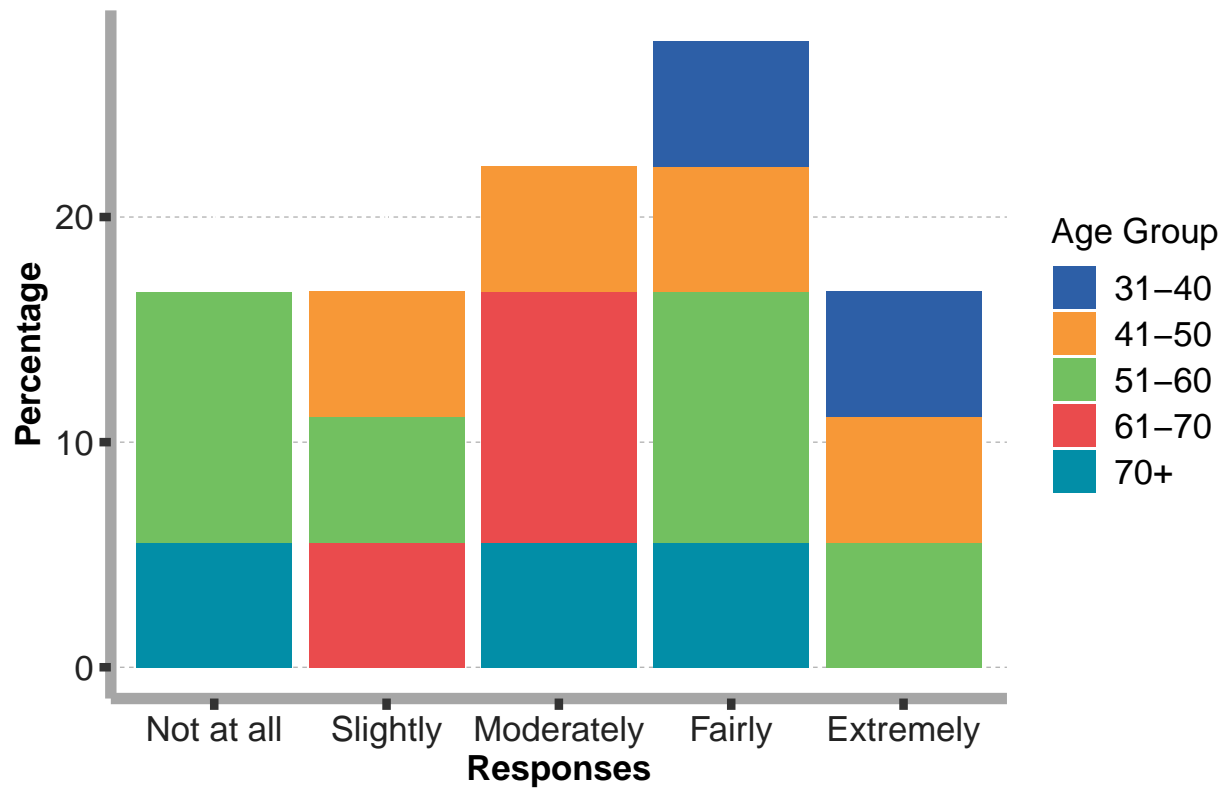
## In-game Module - Oculus Rift



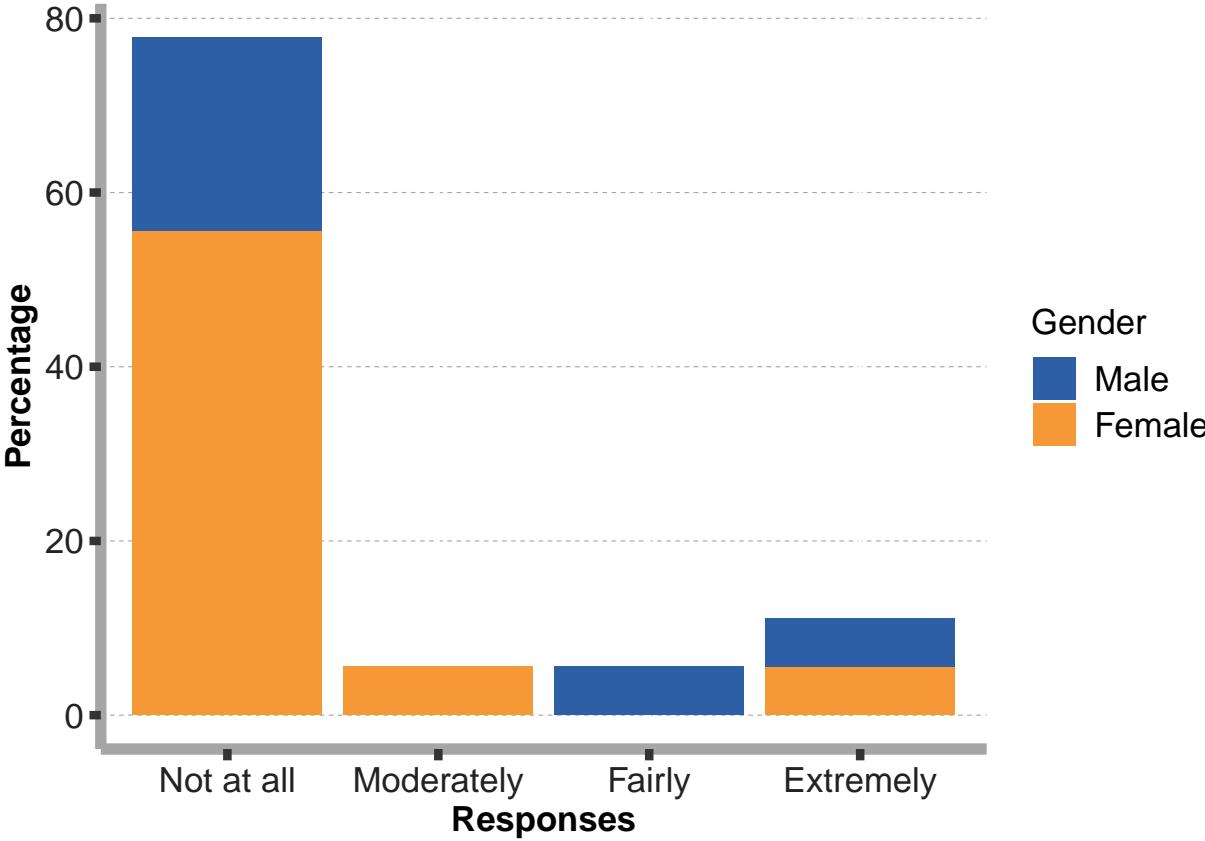
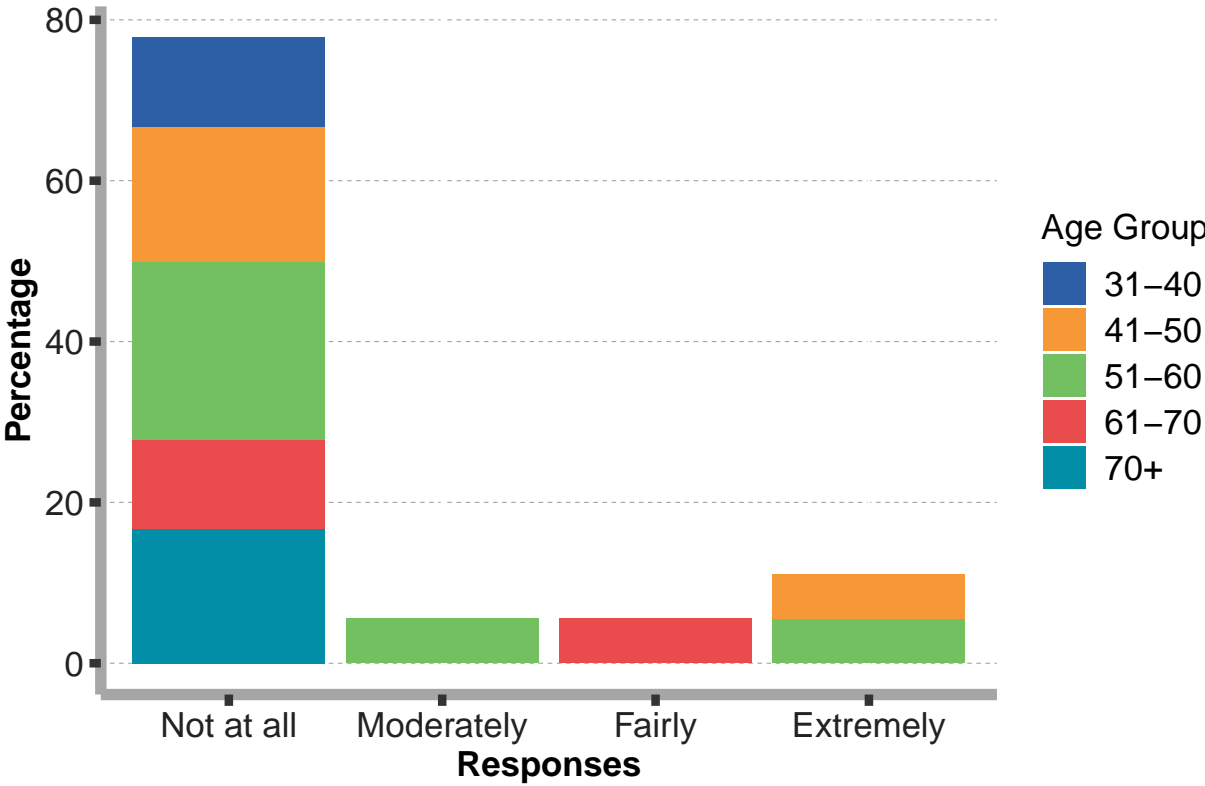
### Q1. I was interested in the game's story



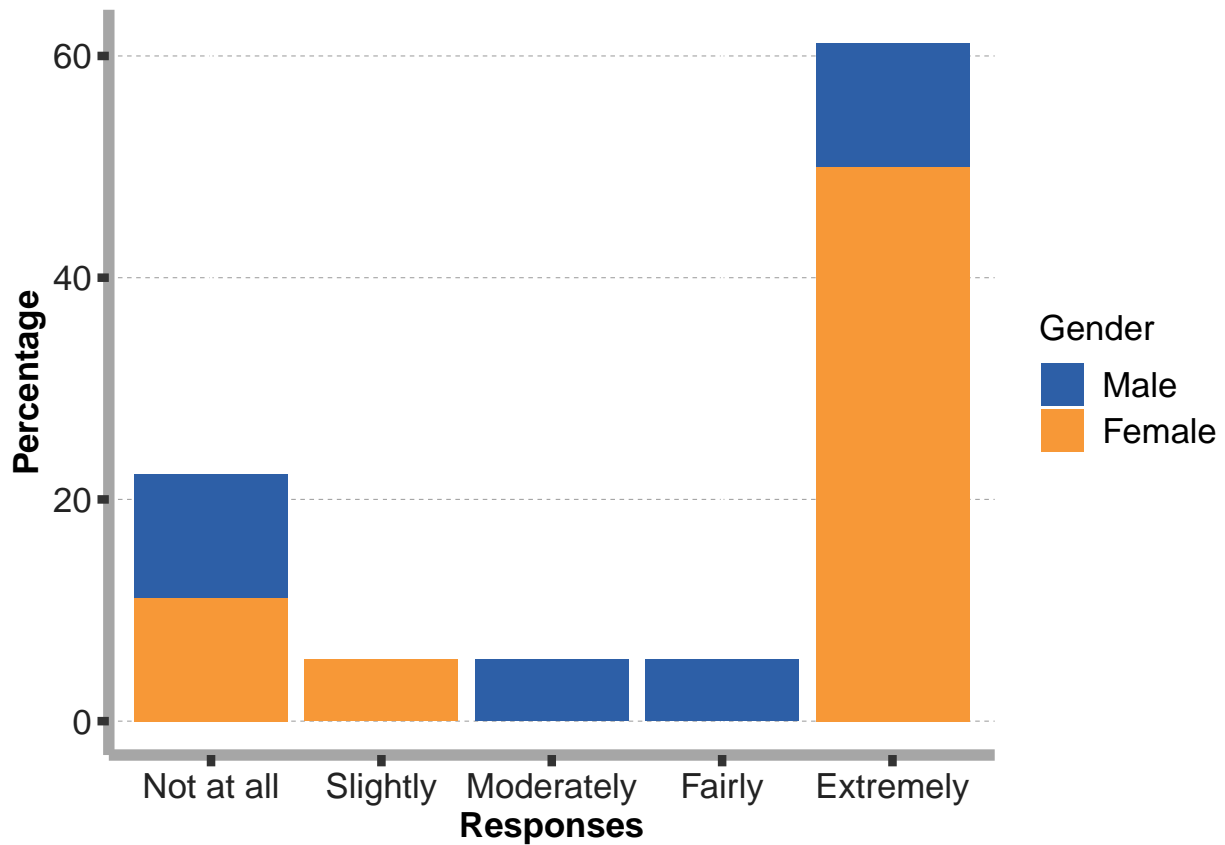
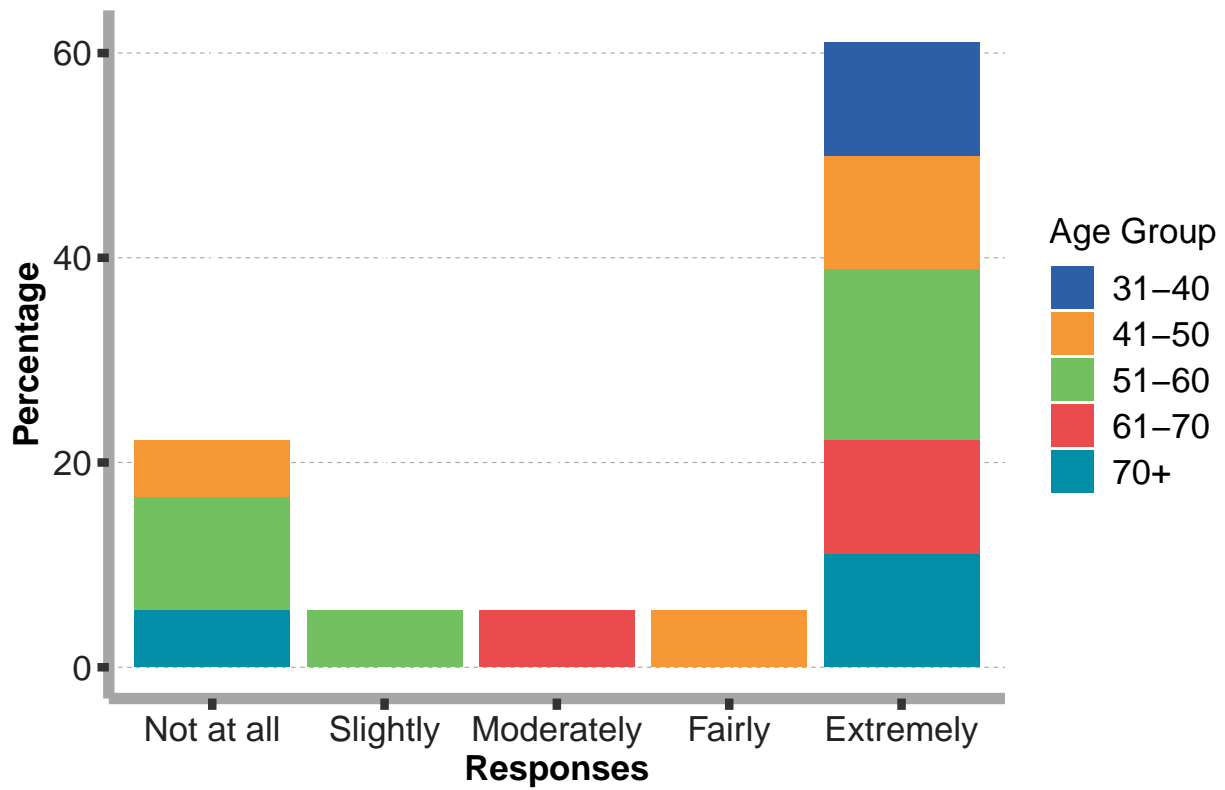
## Q2. I felt successful



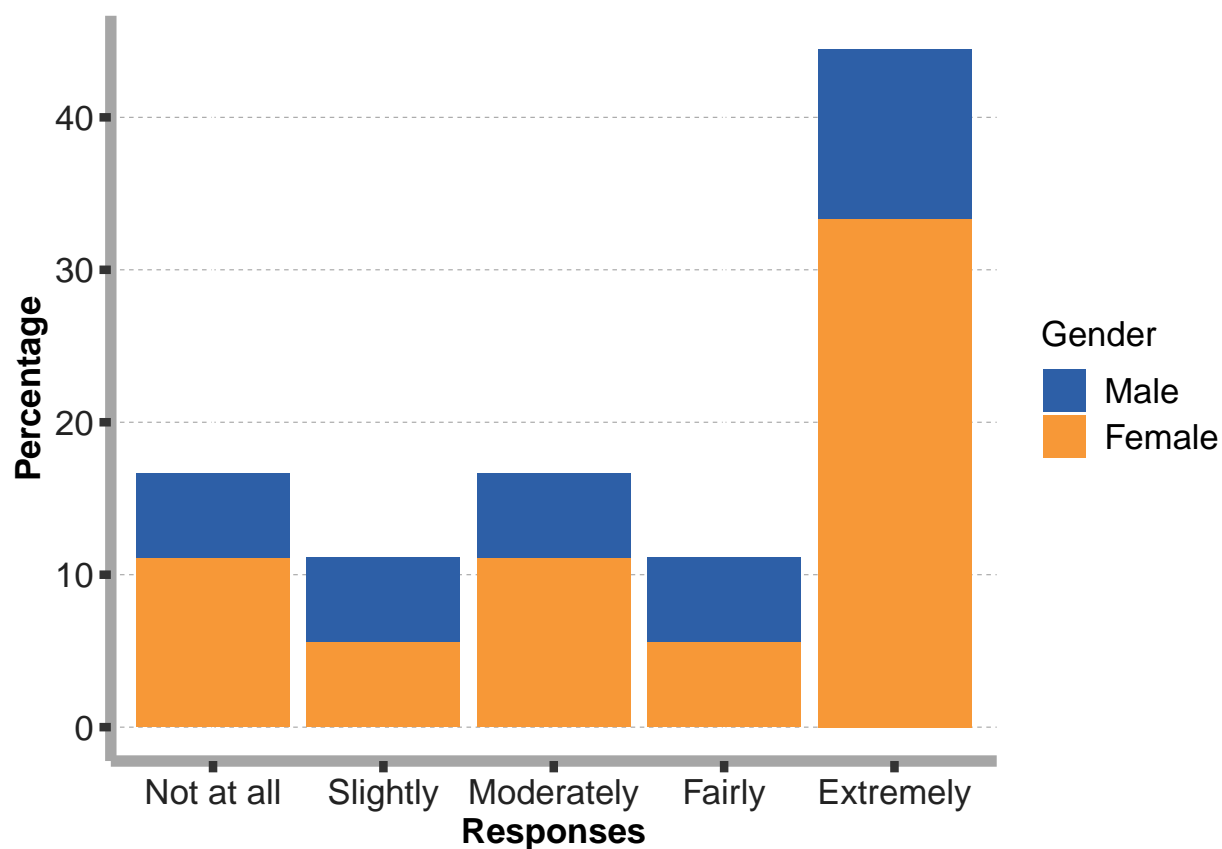
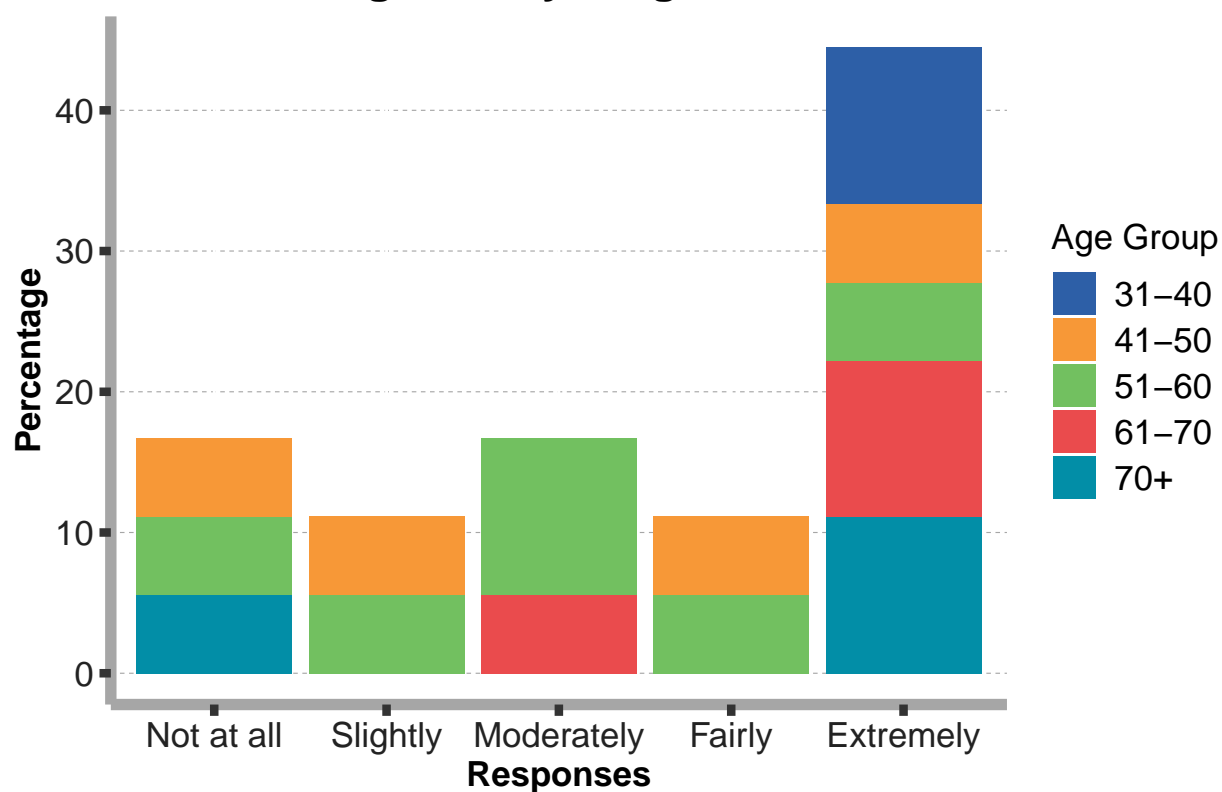
**Q3. I felt bored**



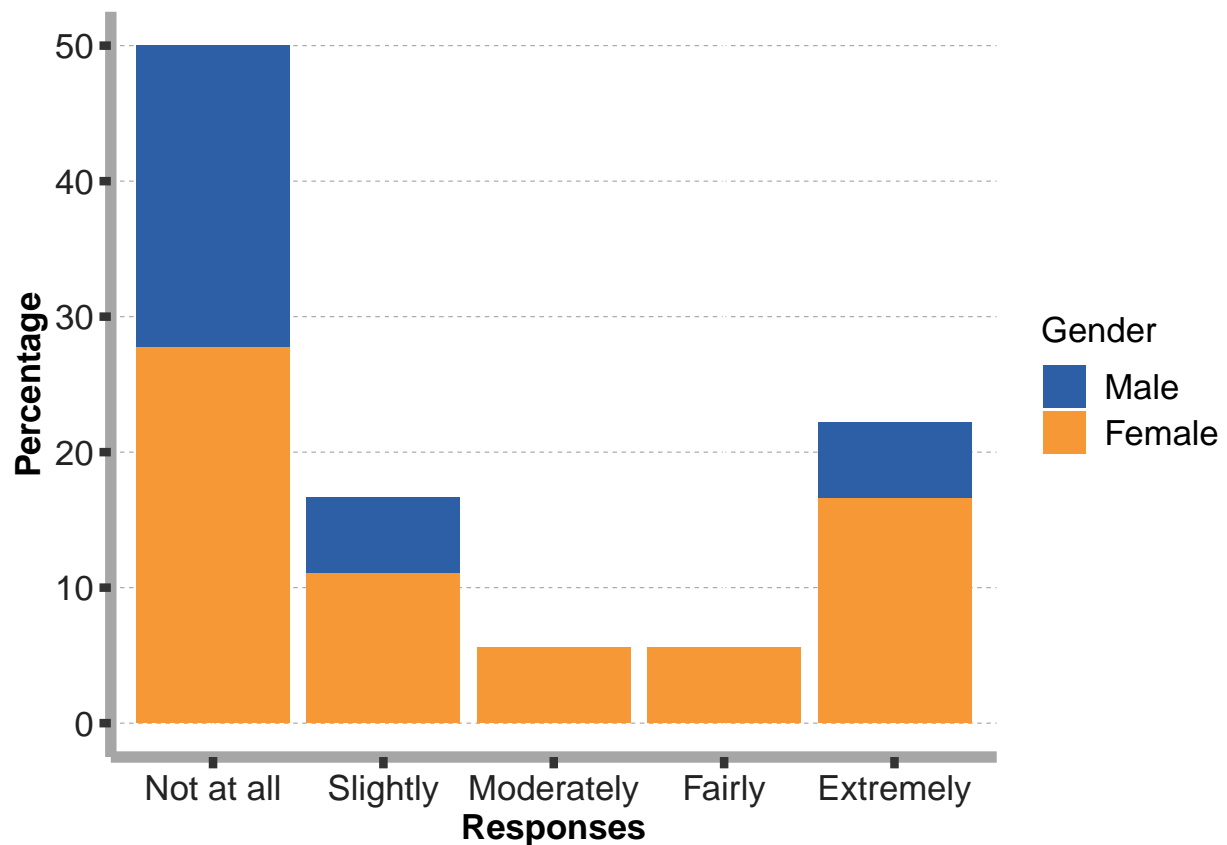
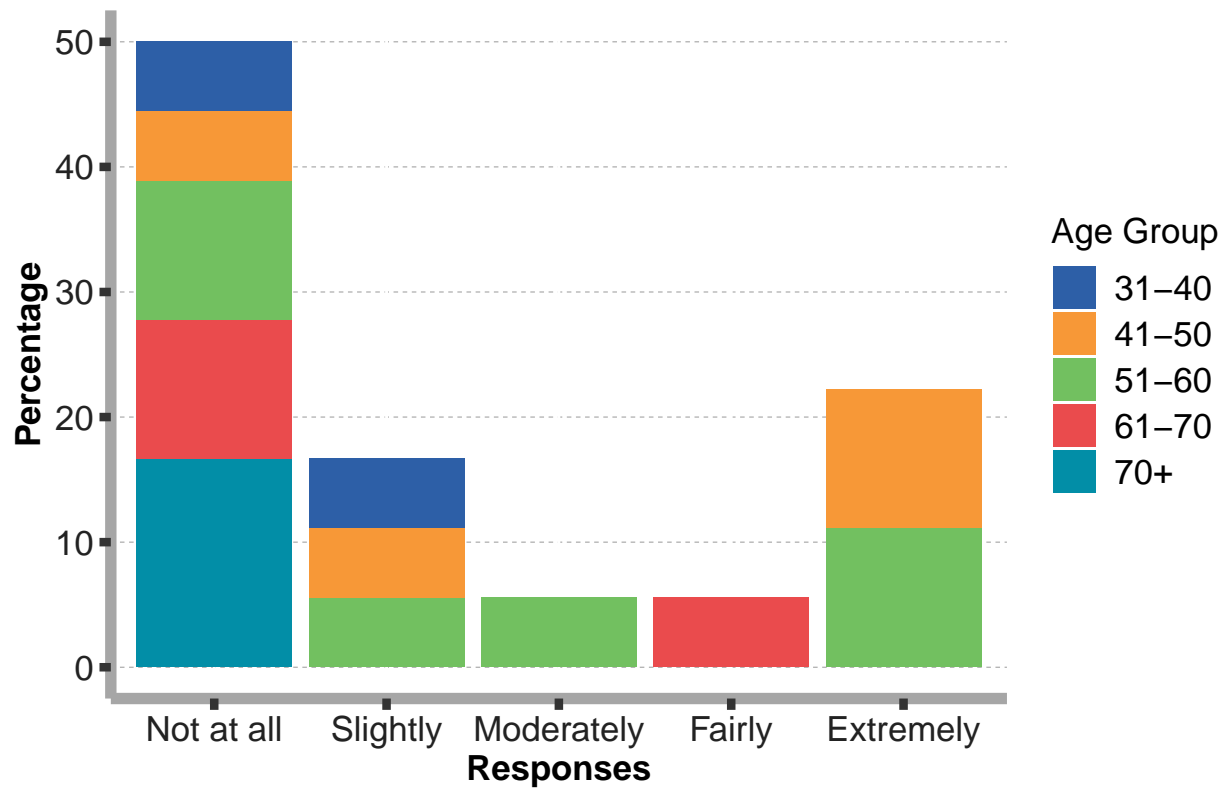
### Q4. I found it impressive



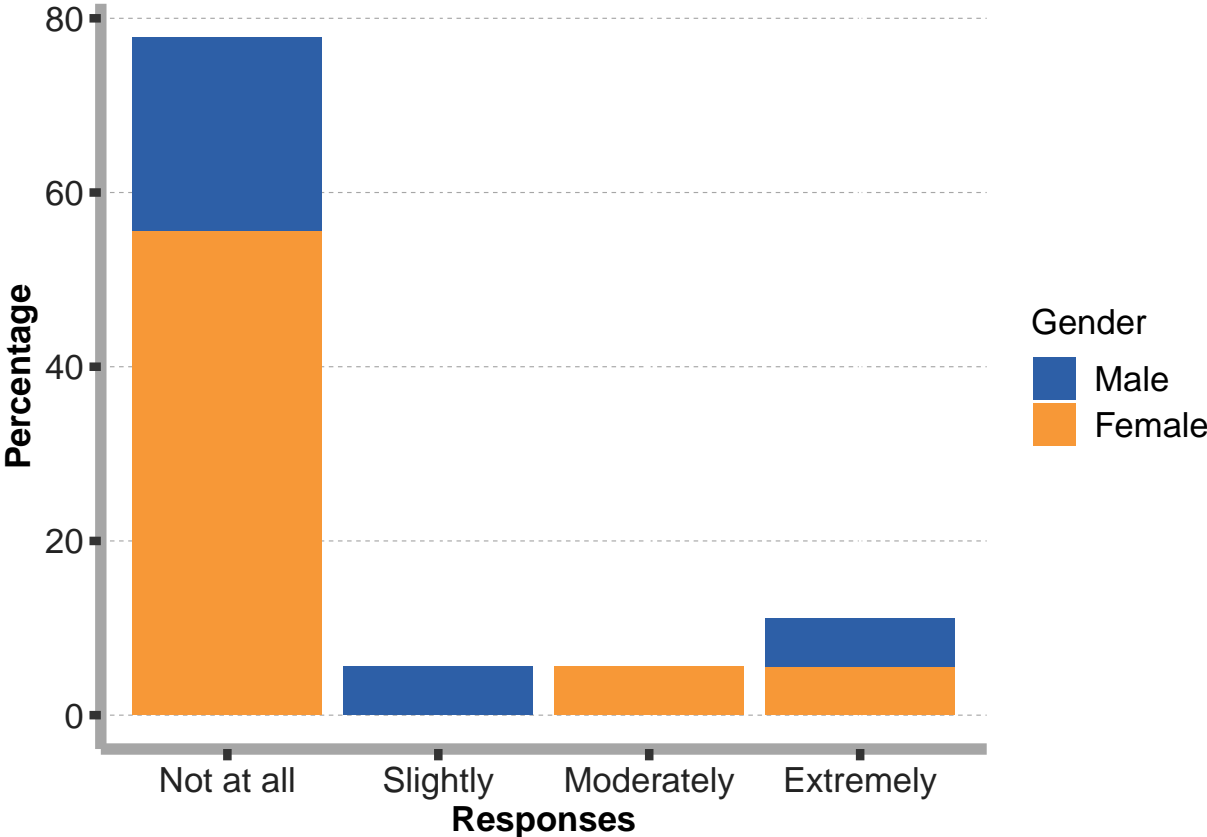
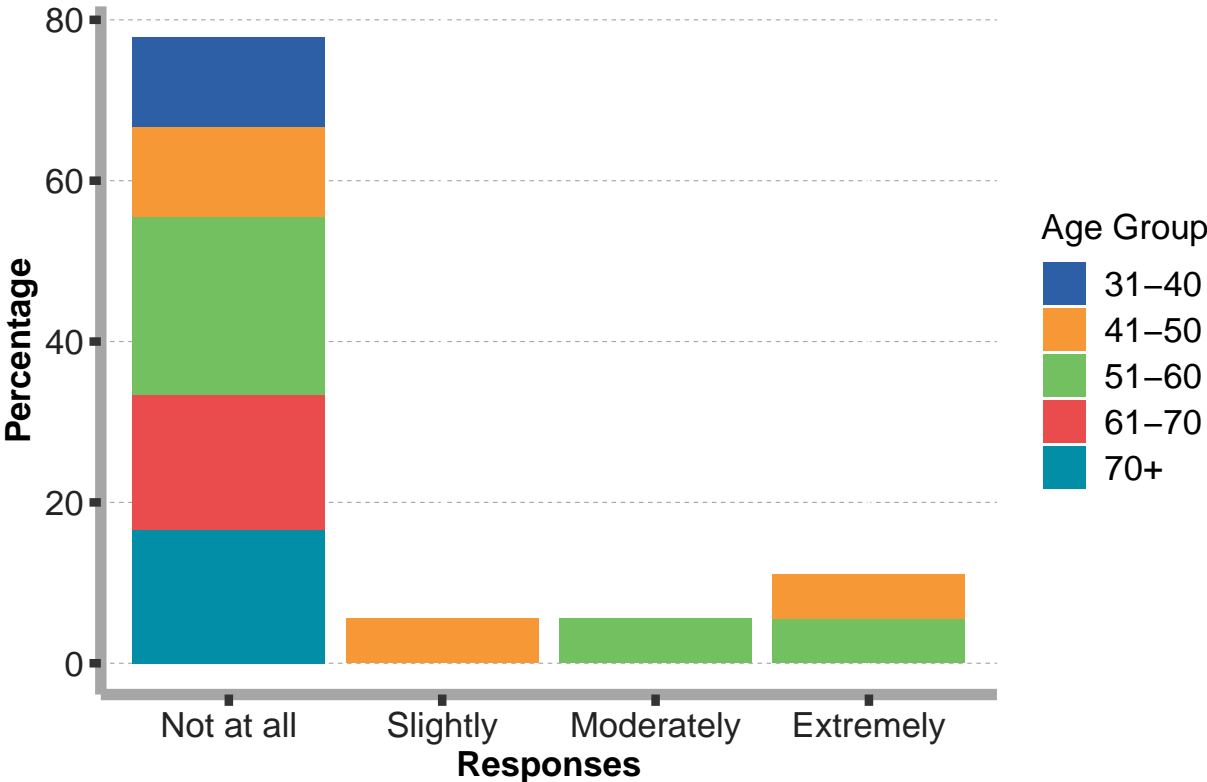
### Q5. I forgot everything around me



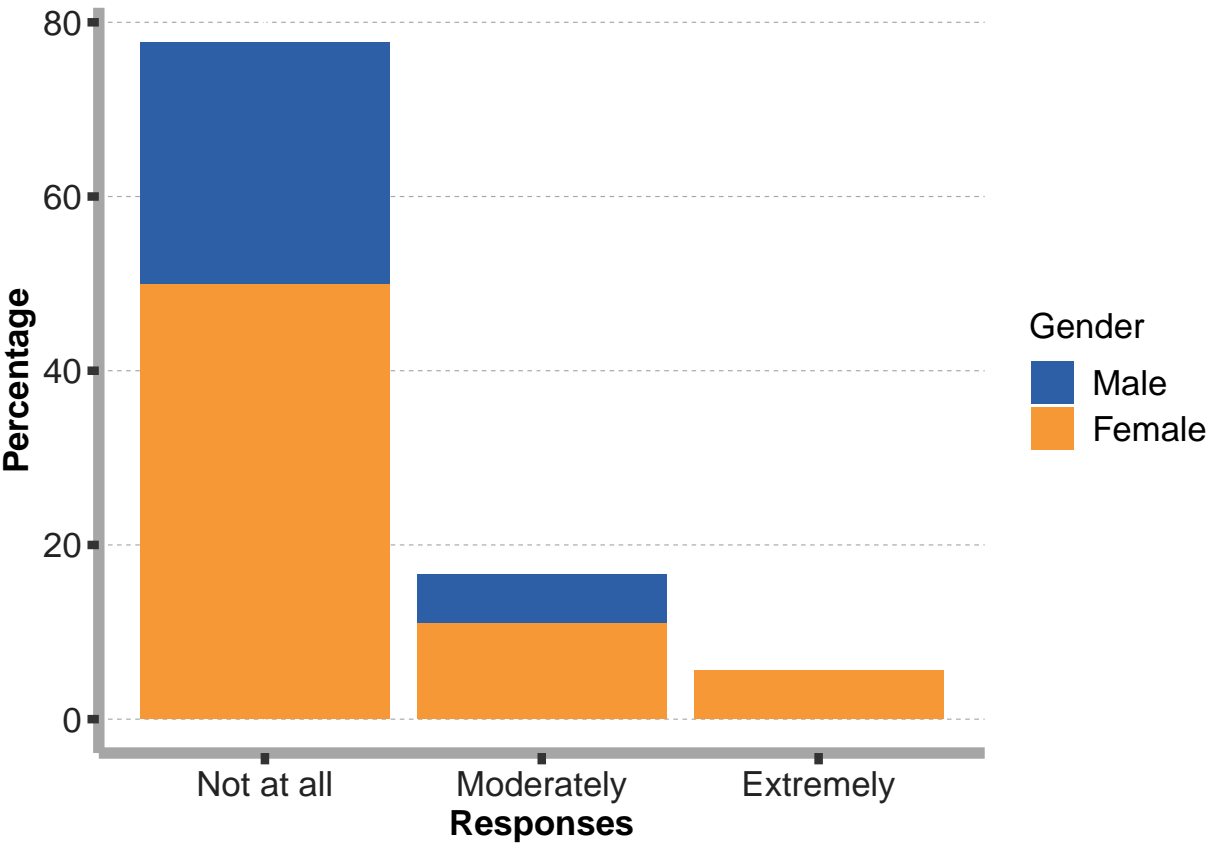
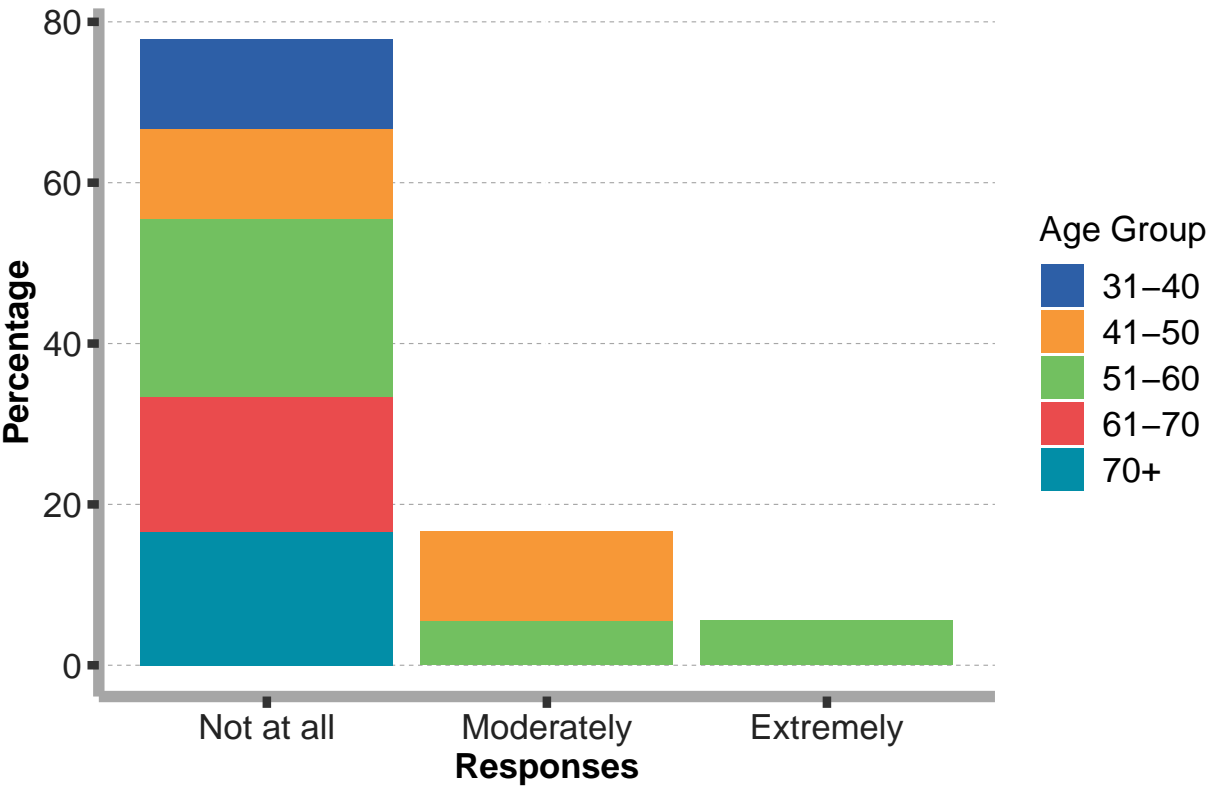
## Q6. I felt frustrated



**Q7. I found it tiresome**

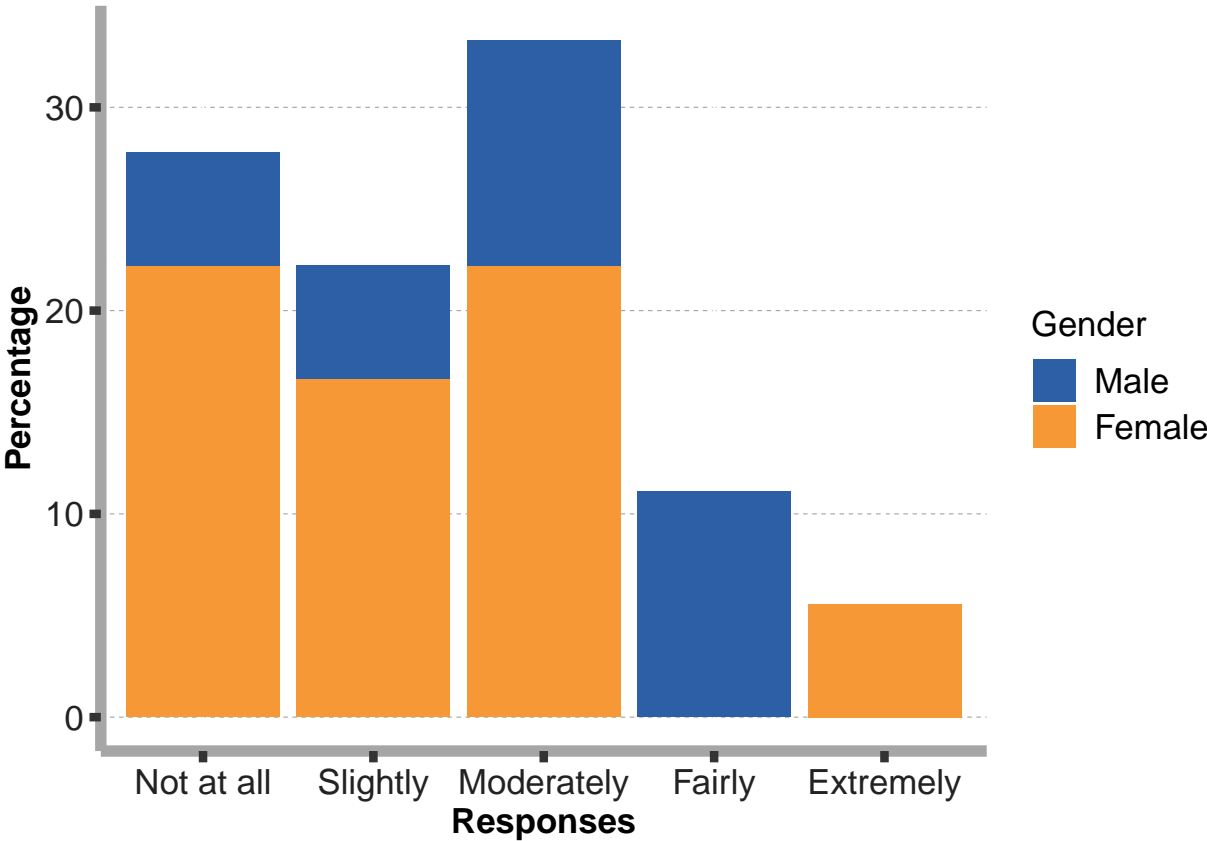
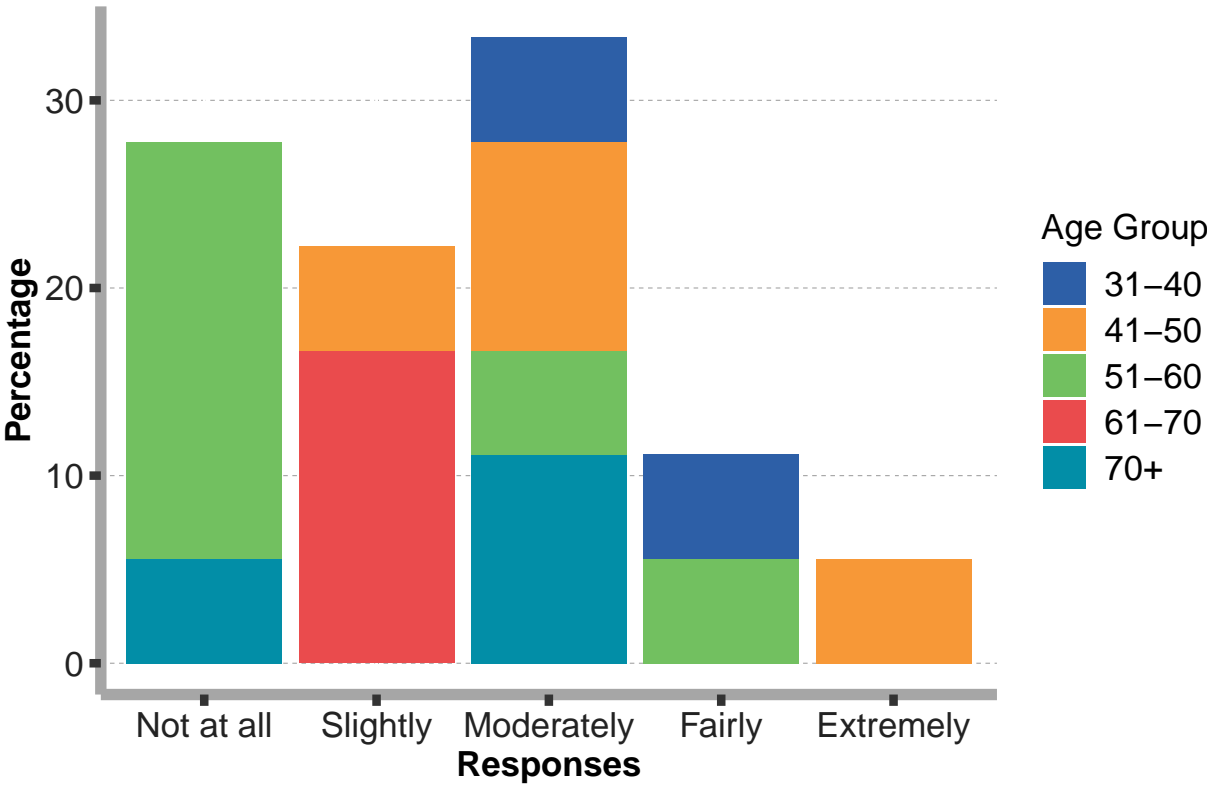


Q8. I felt irritable

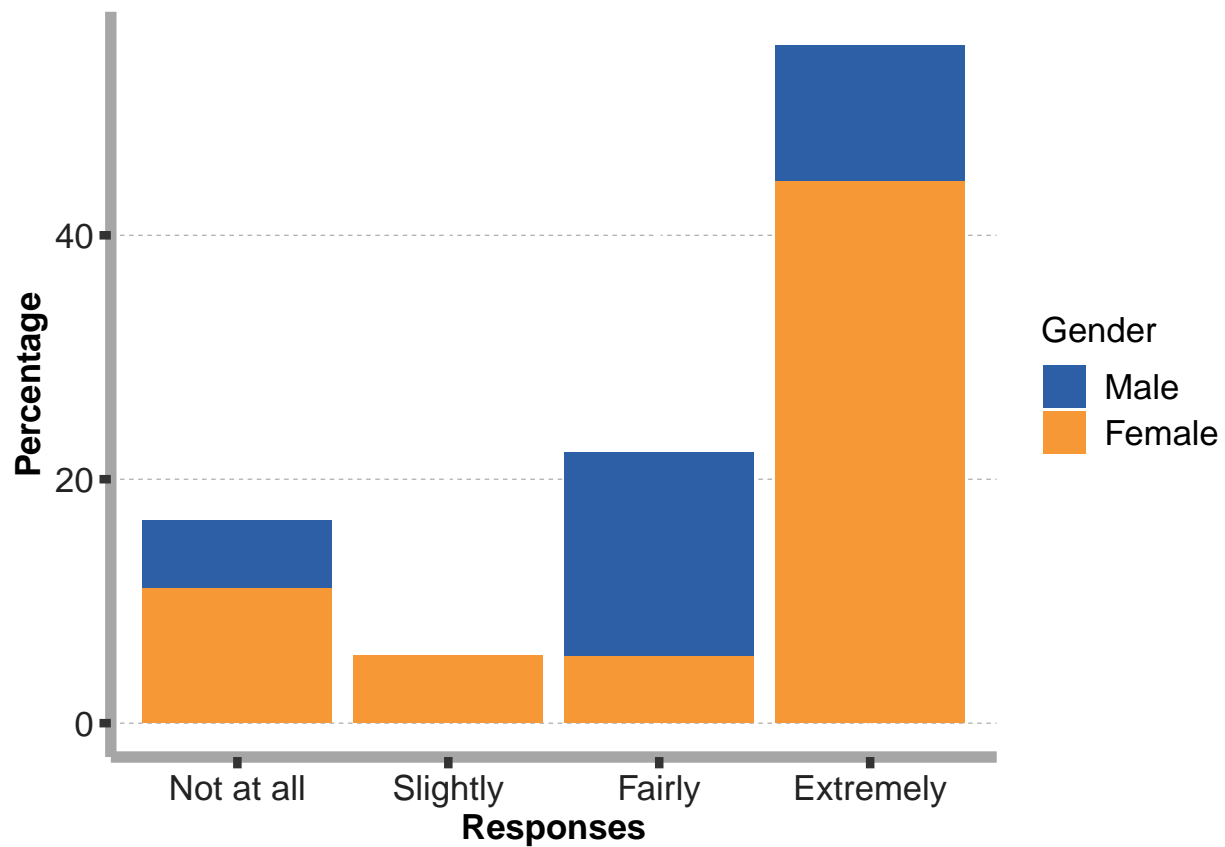
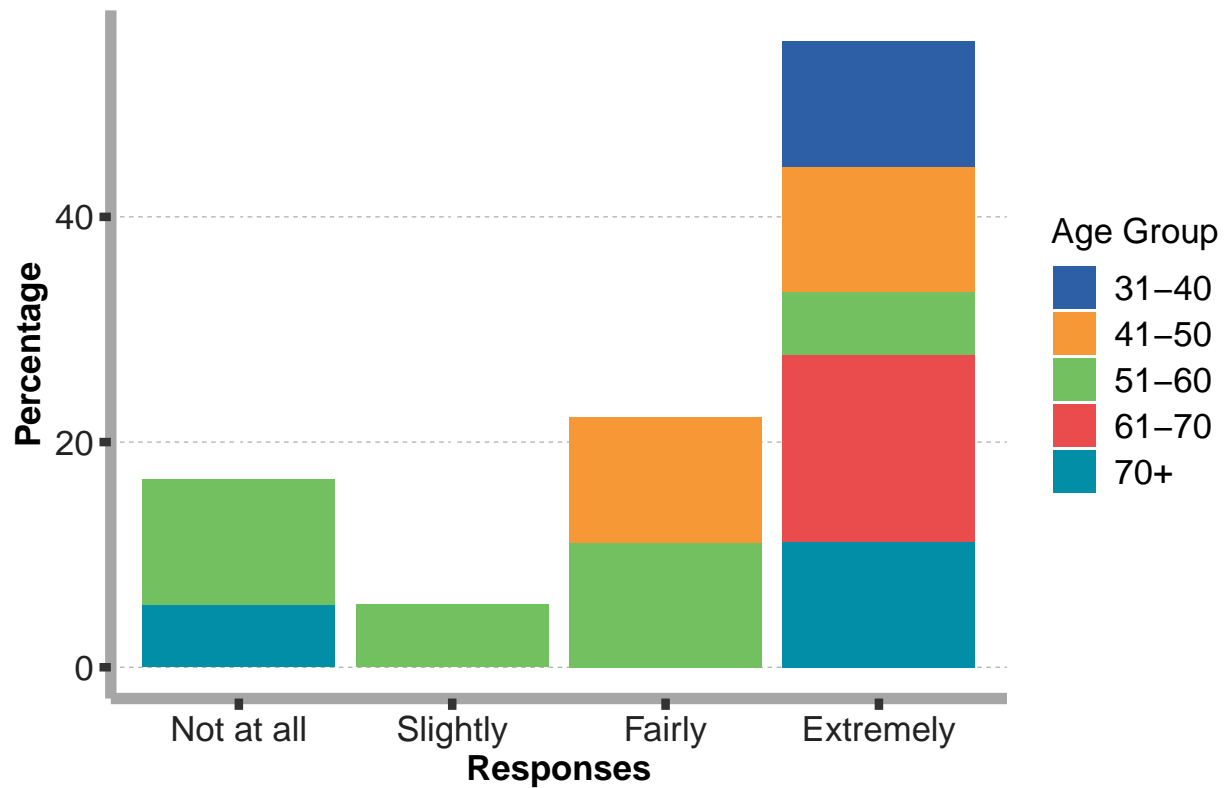




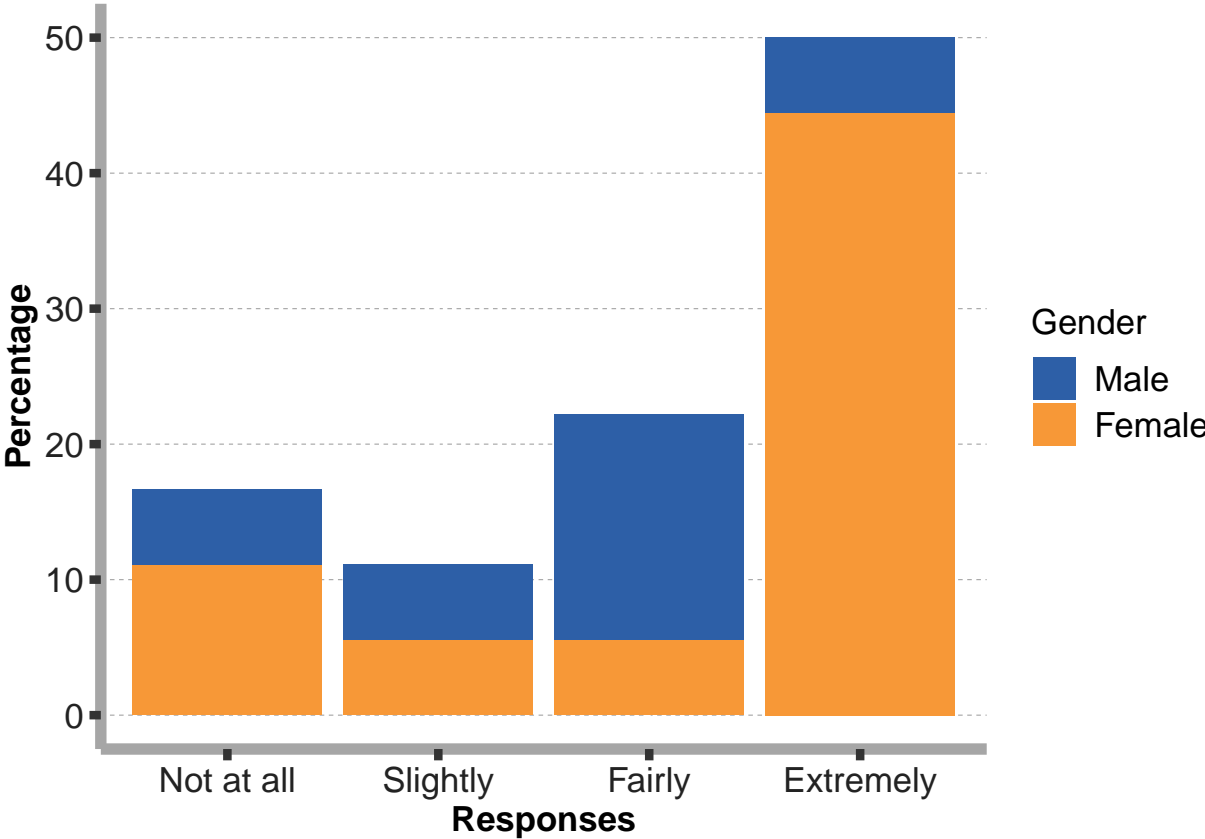
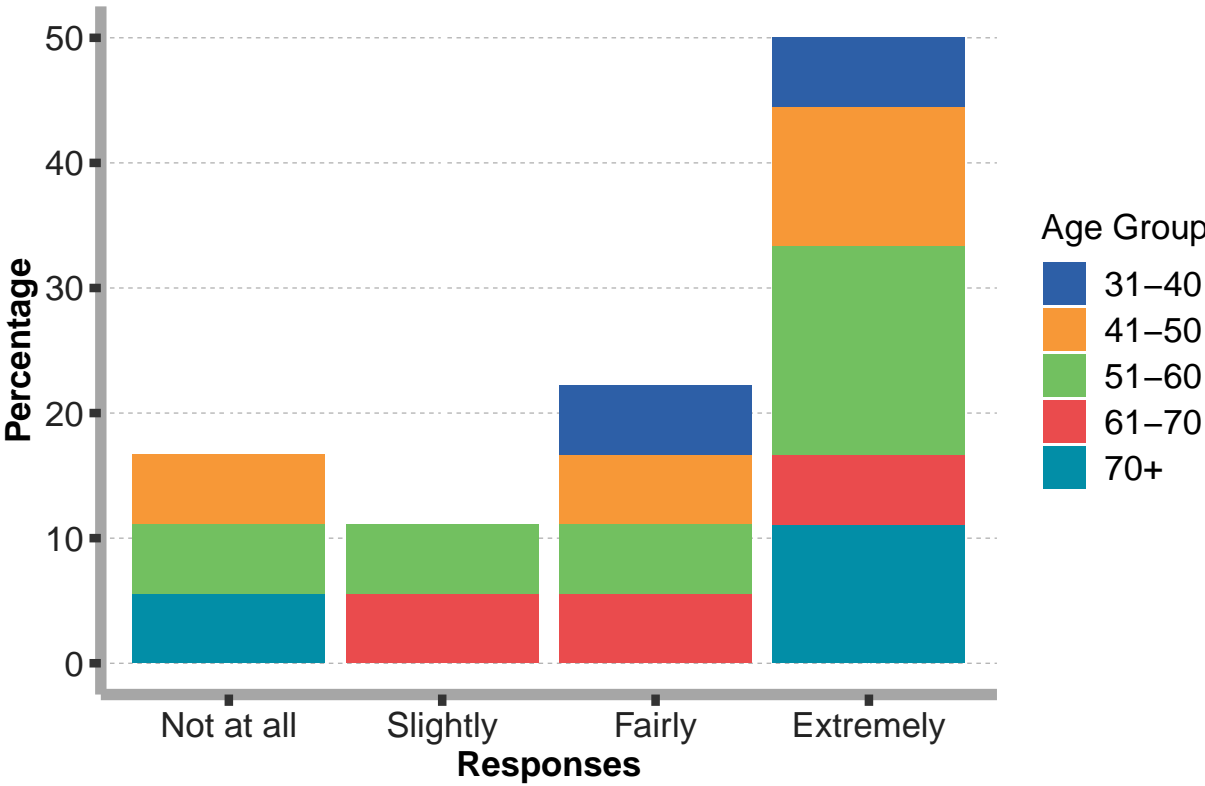
**Q9. I felt skillfull**



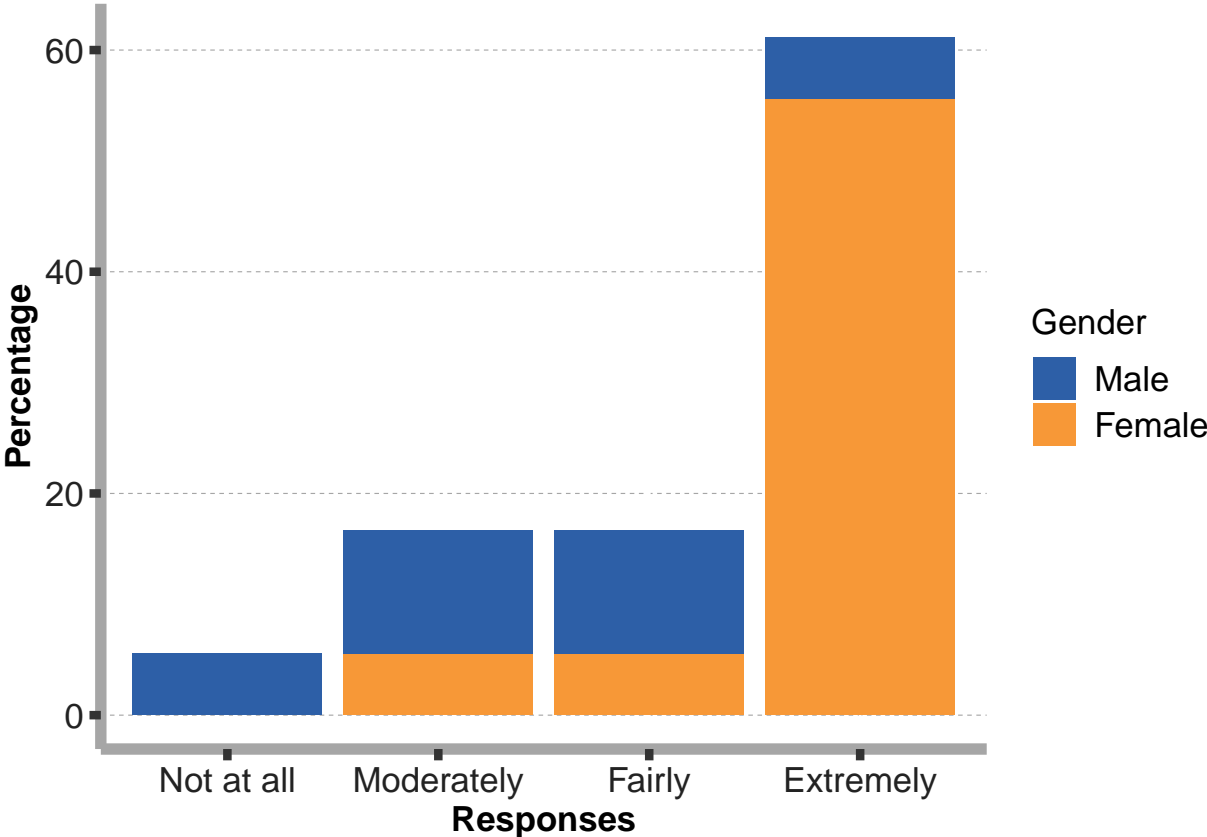
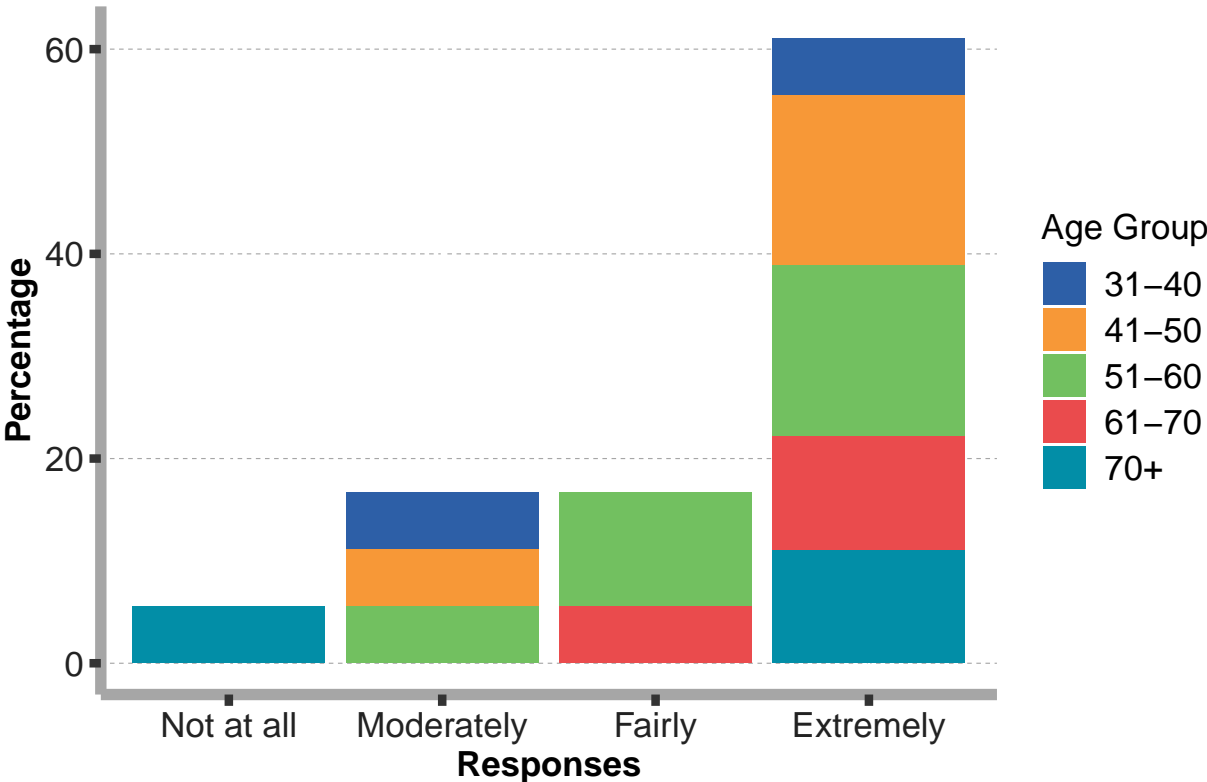
### Q10. I felt completely absorbed



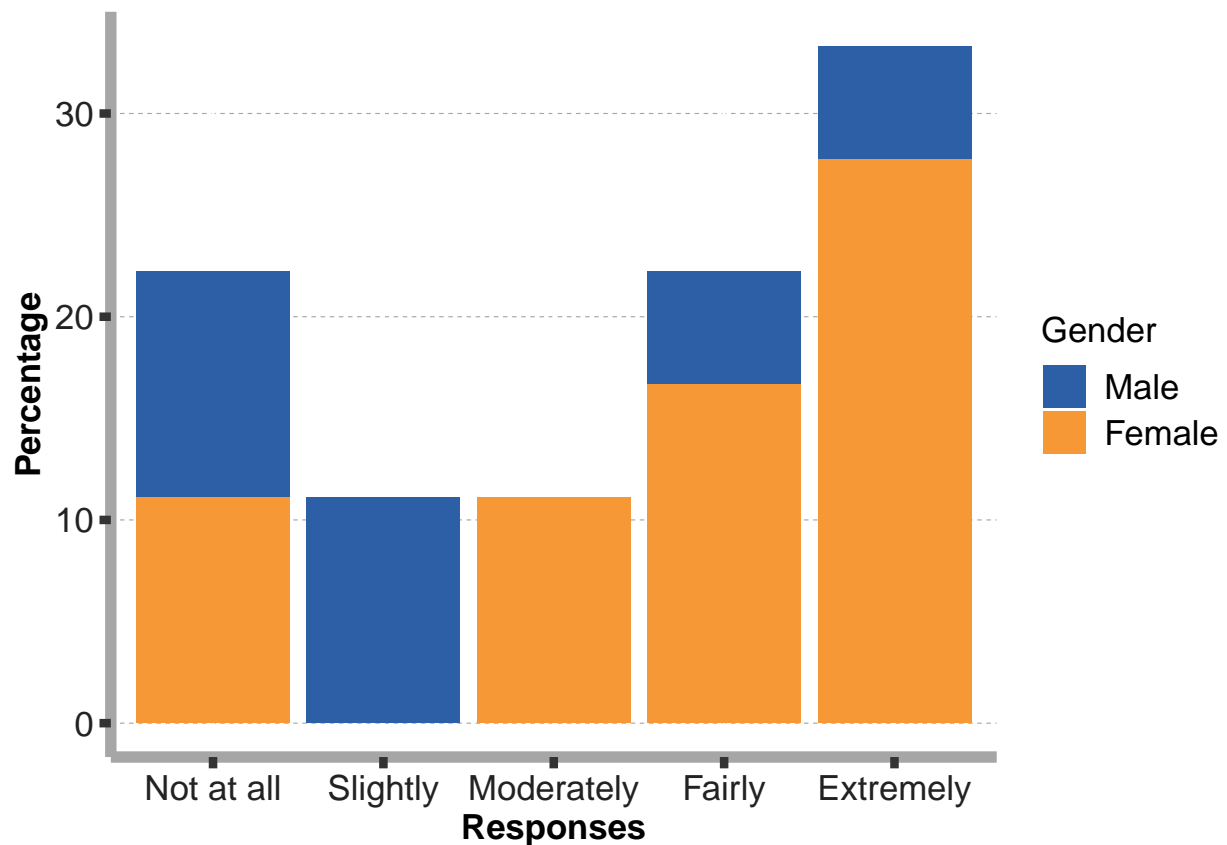
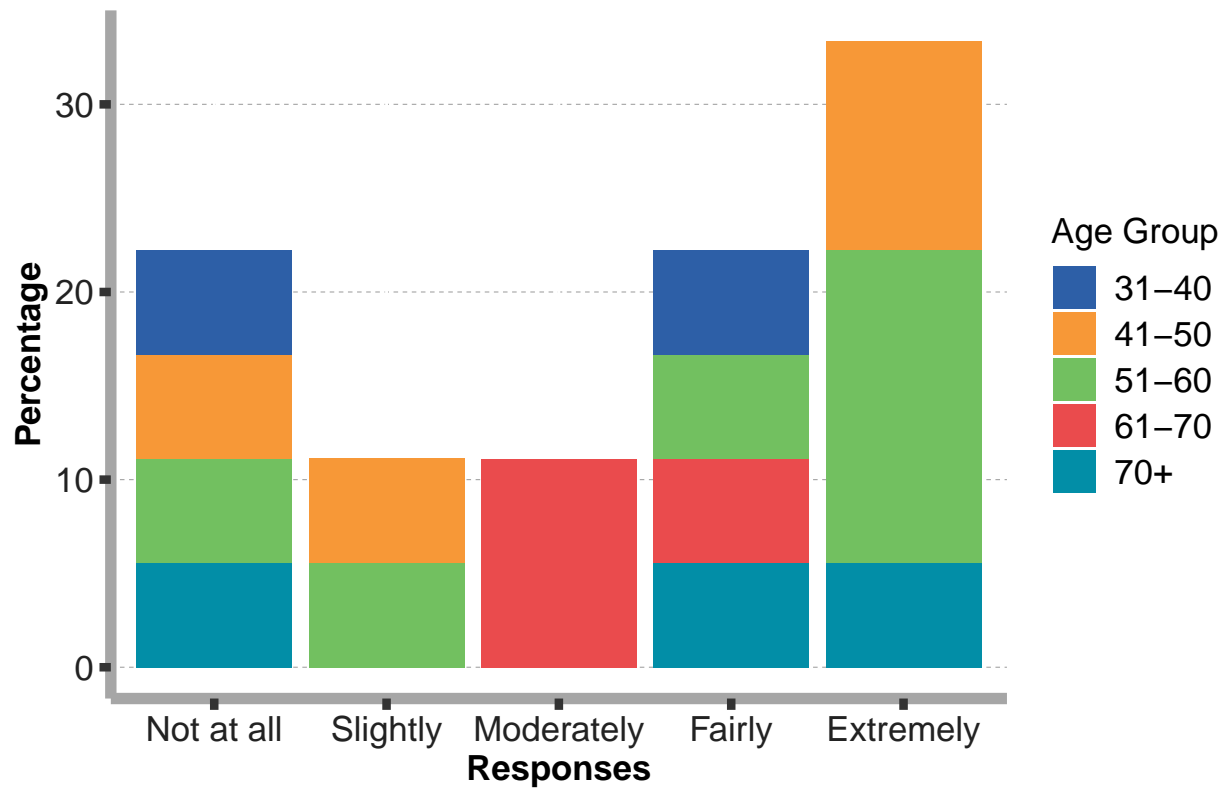
Q11. I felt content



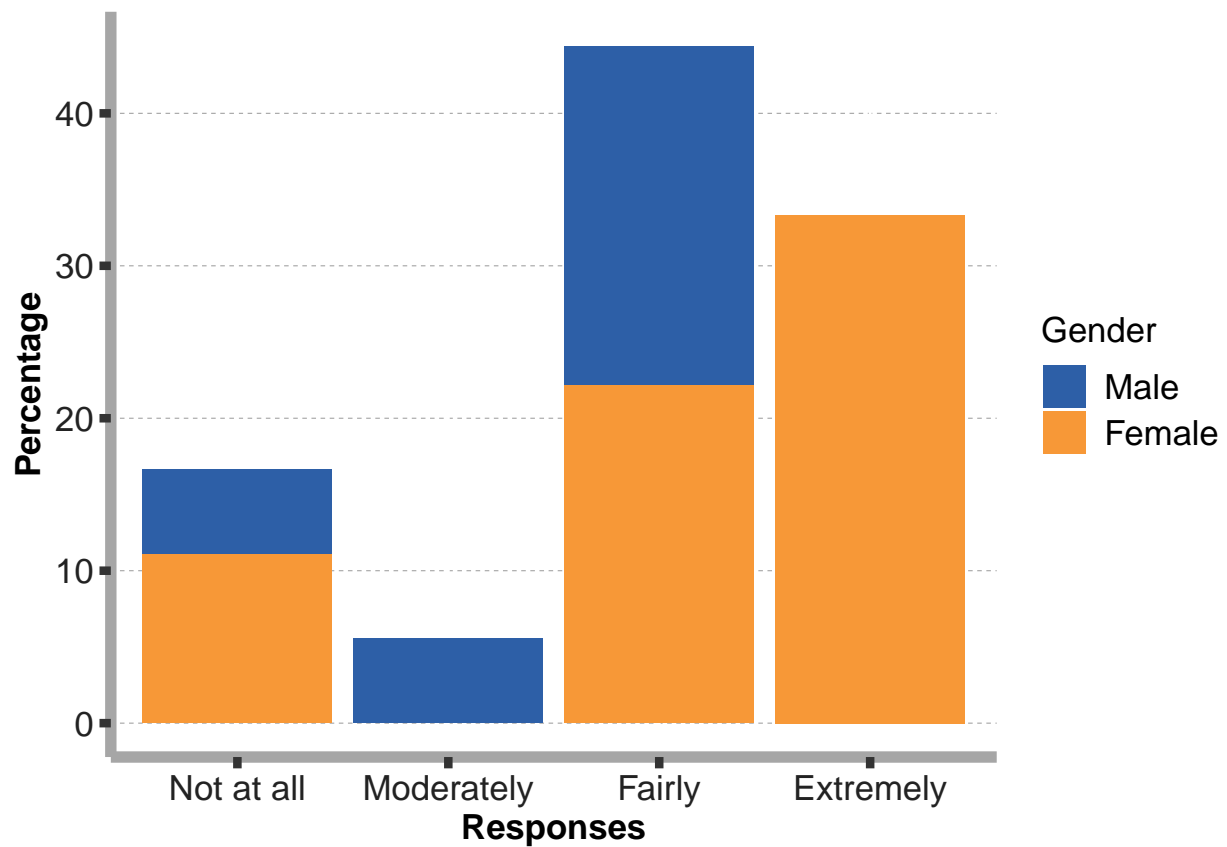
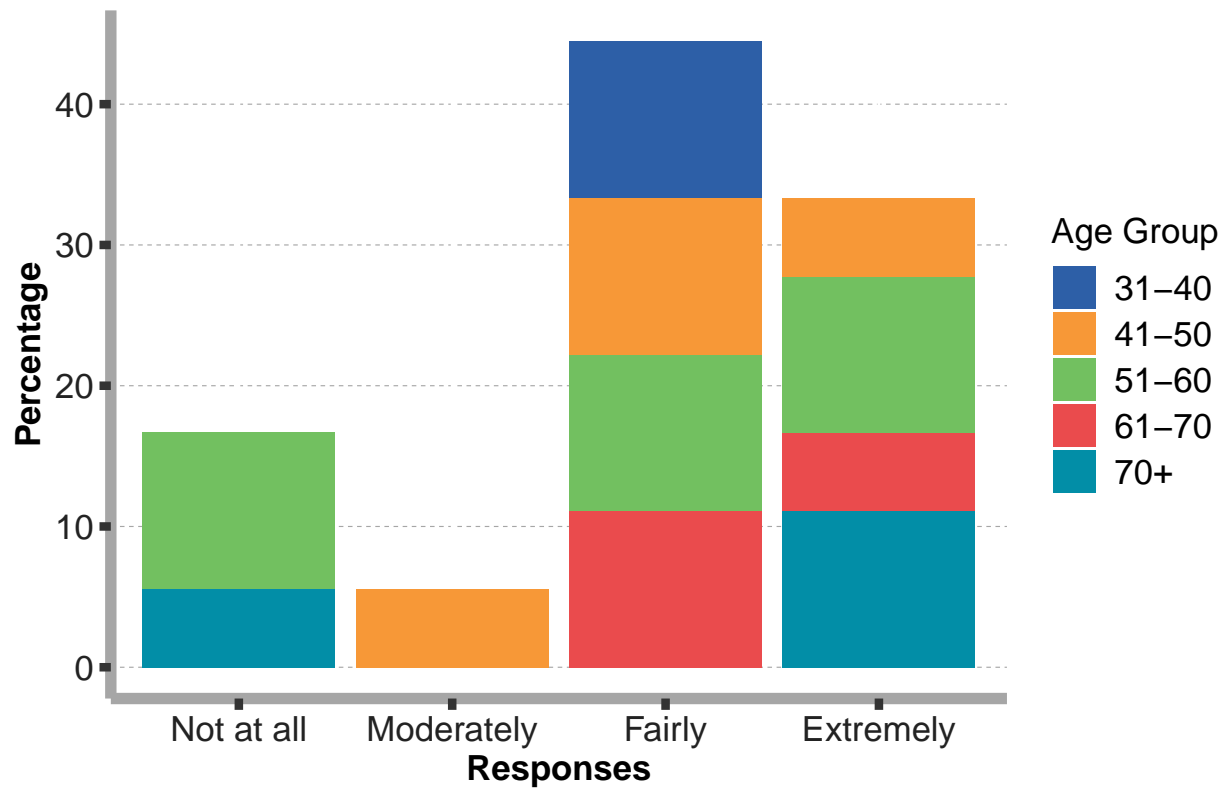
**Q12. I felt challenged**



### Q13. I had to put a lot of effort into it

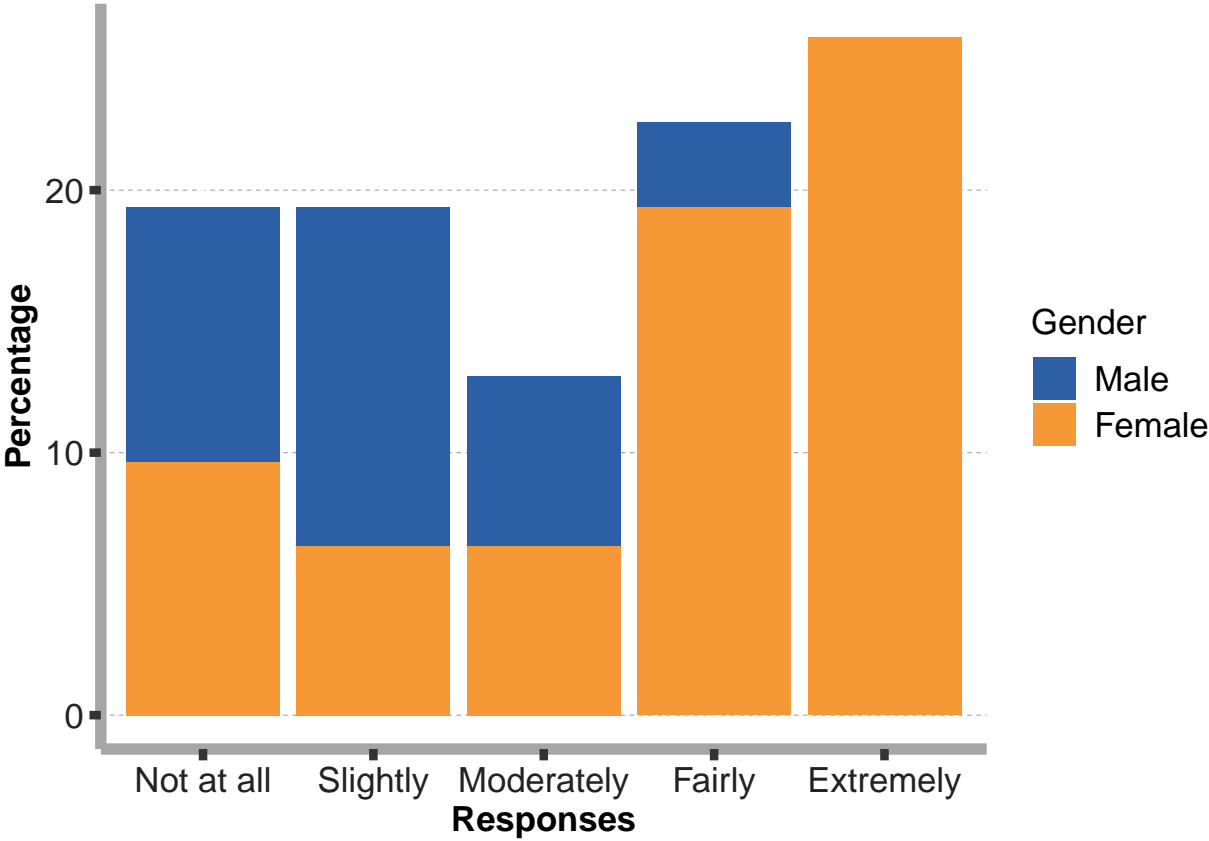
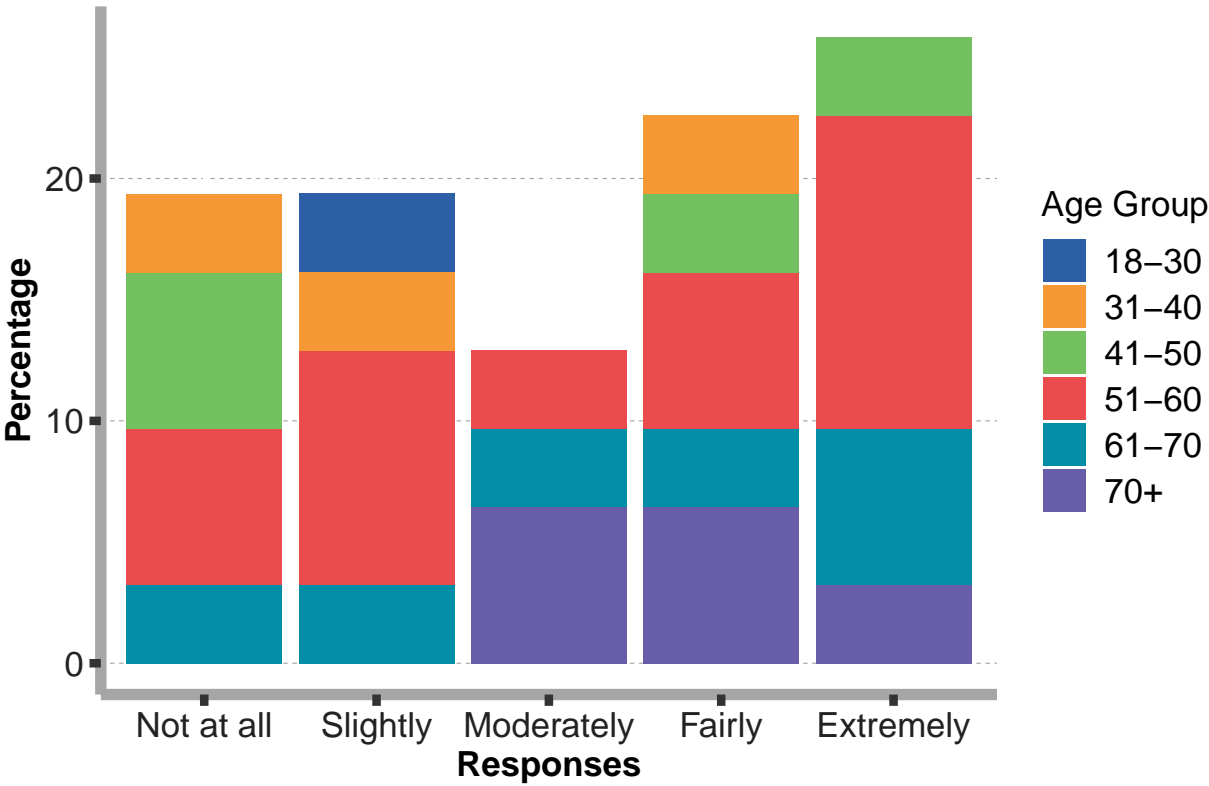


### Q14. I felt good



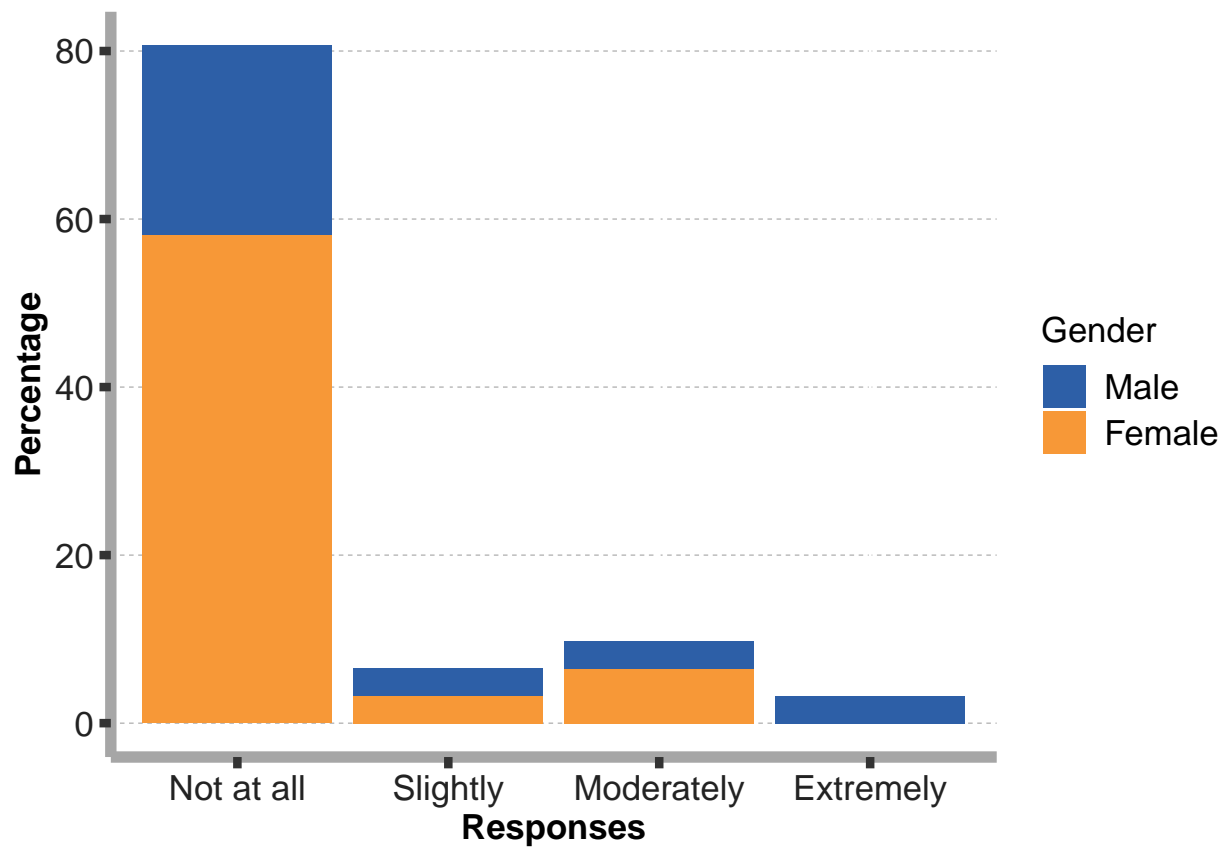
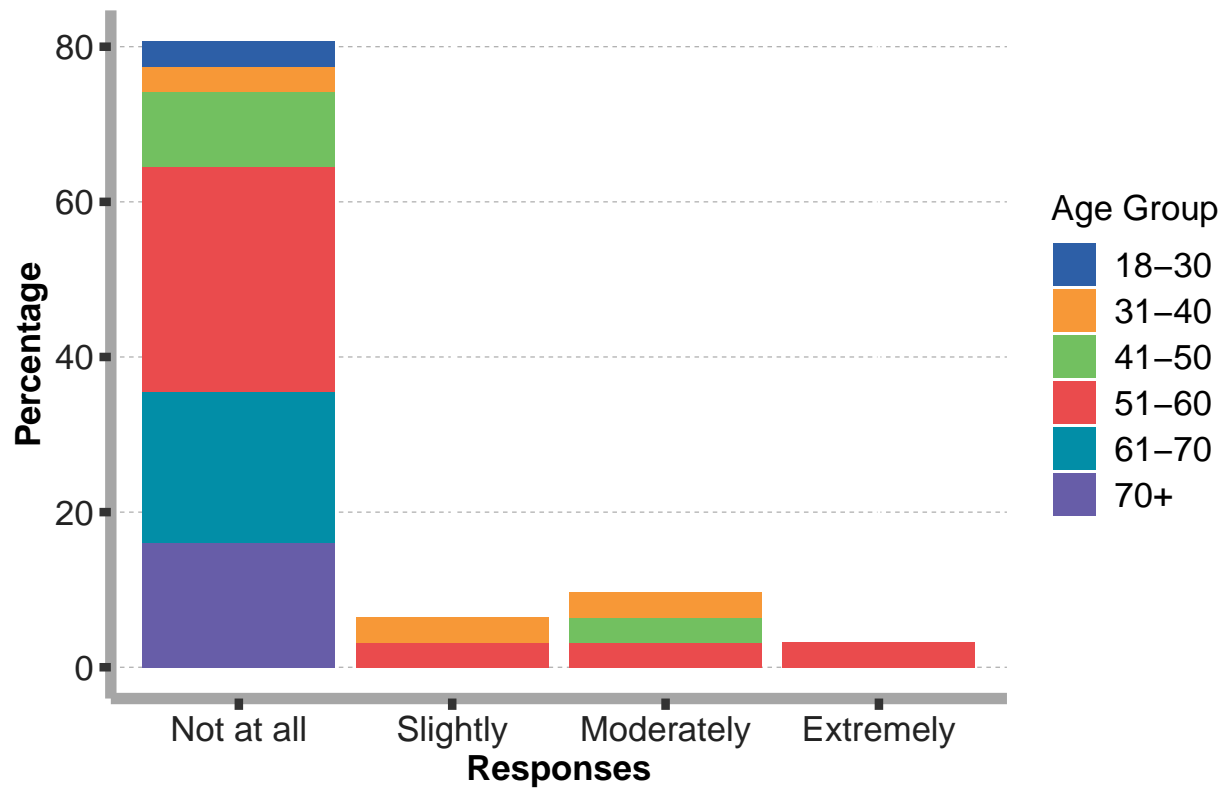
## Post-game Module - Oculus Go

Q1. I felt revived

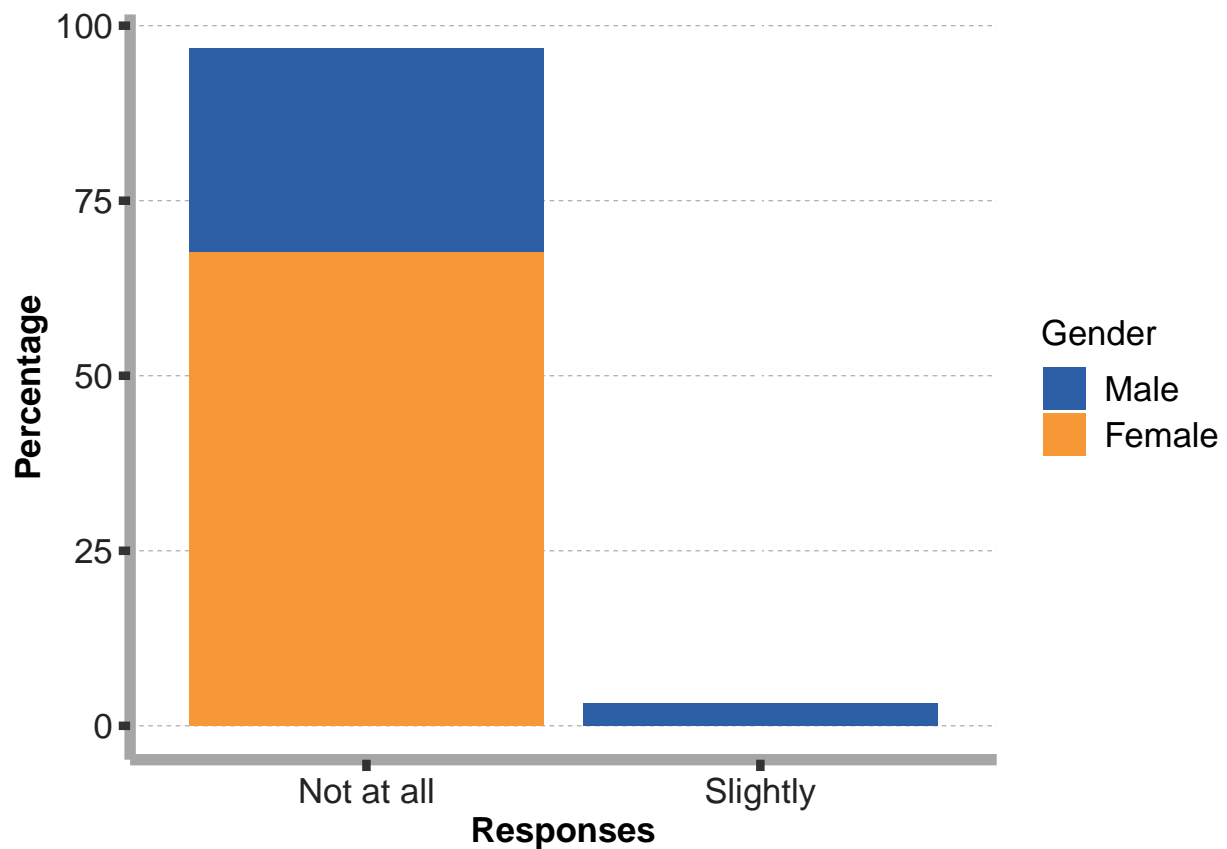
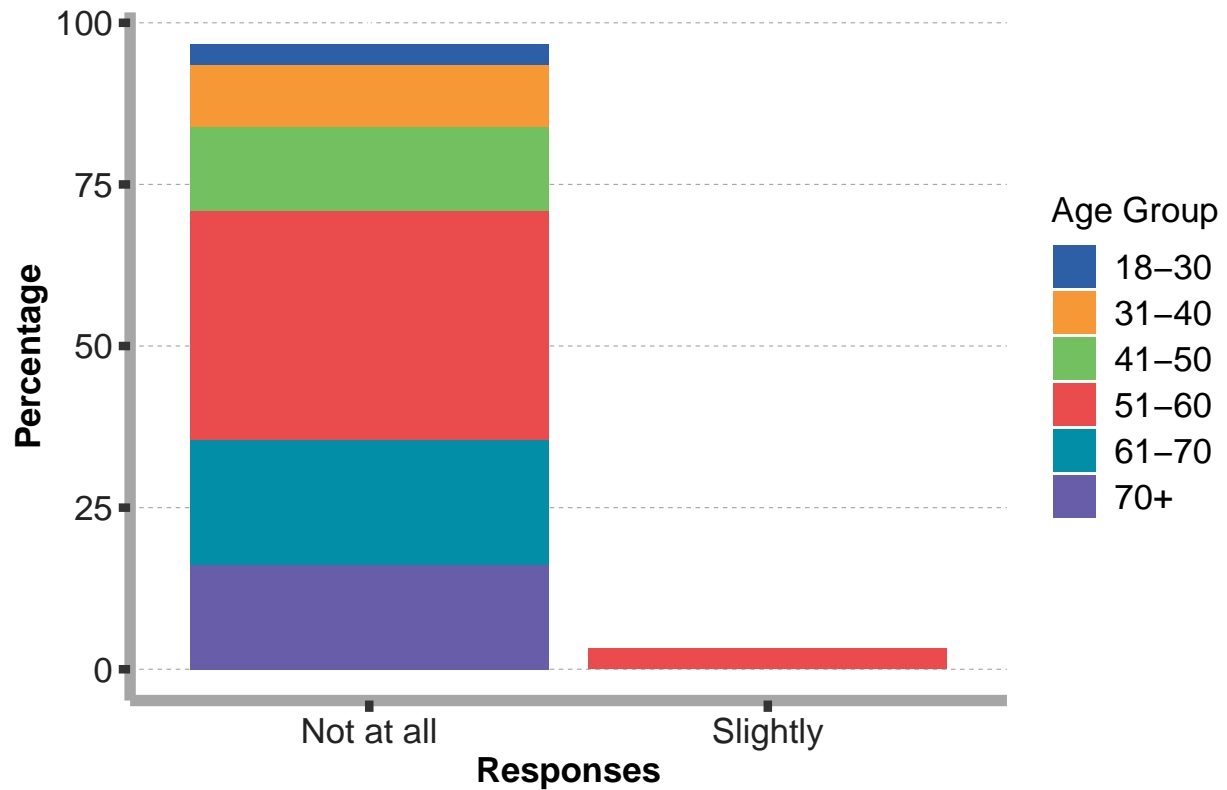




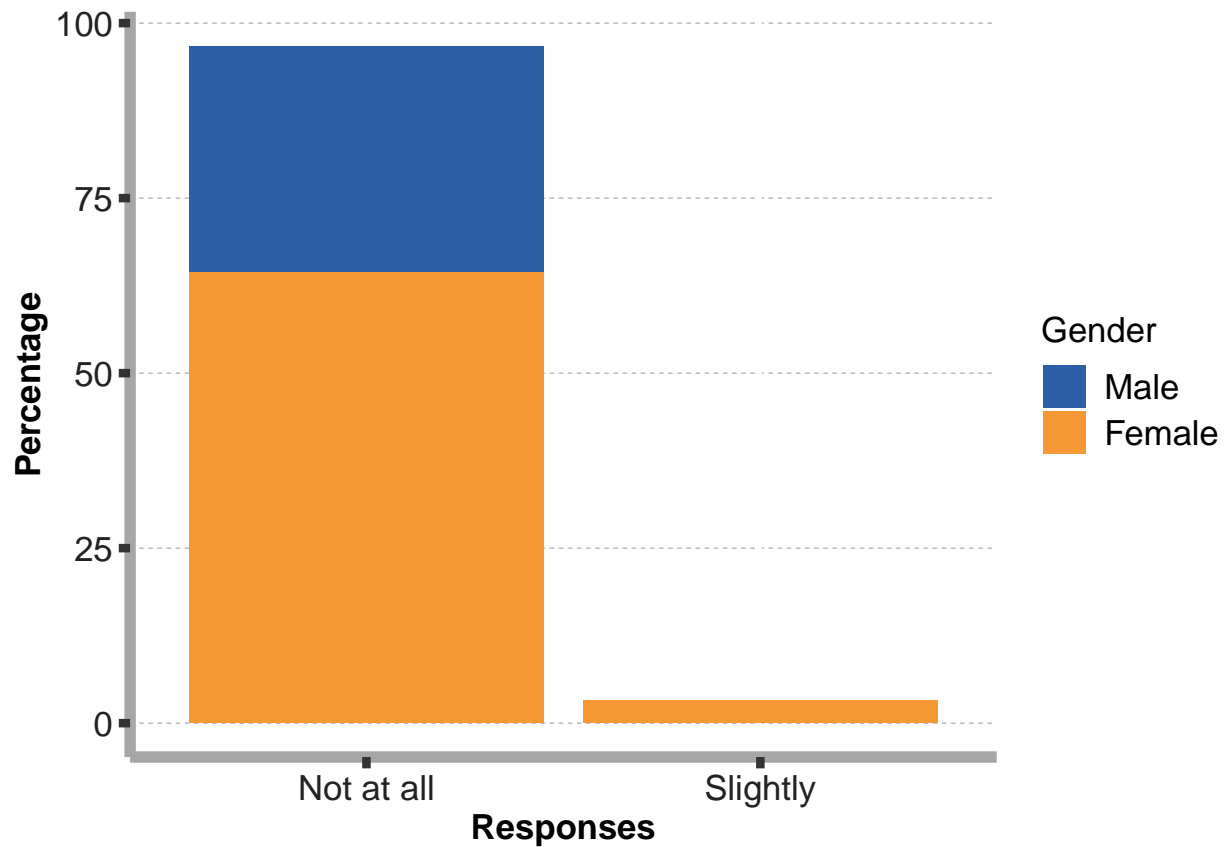
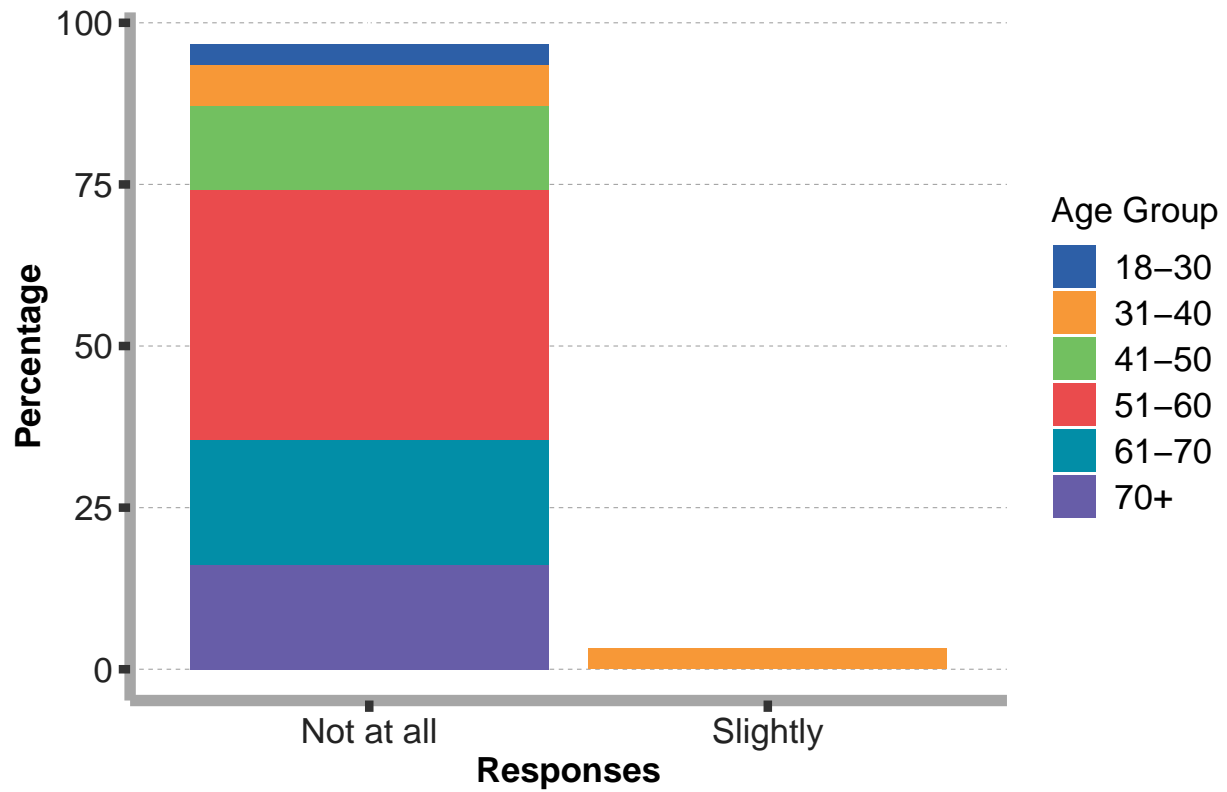
## Q2. I felt bad



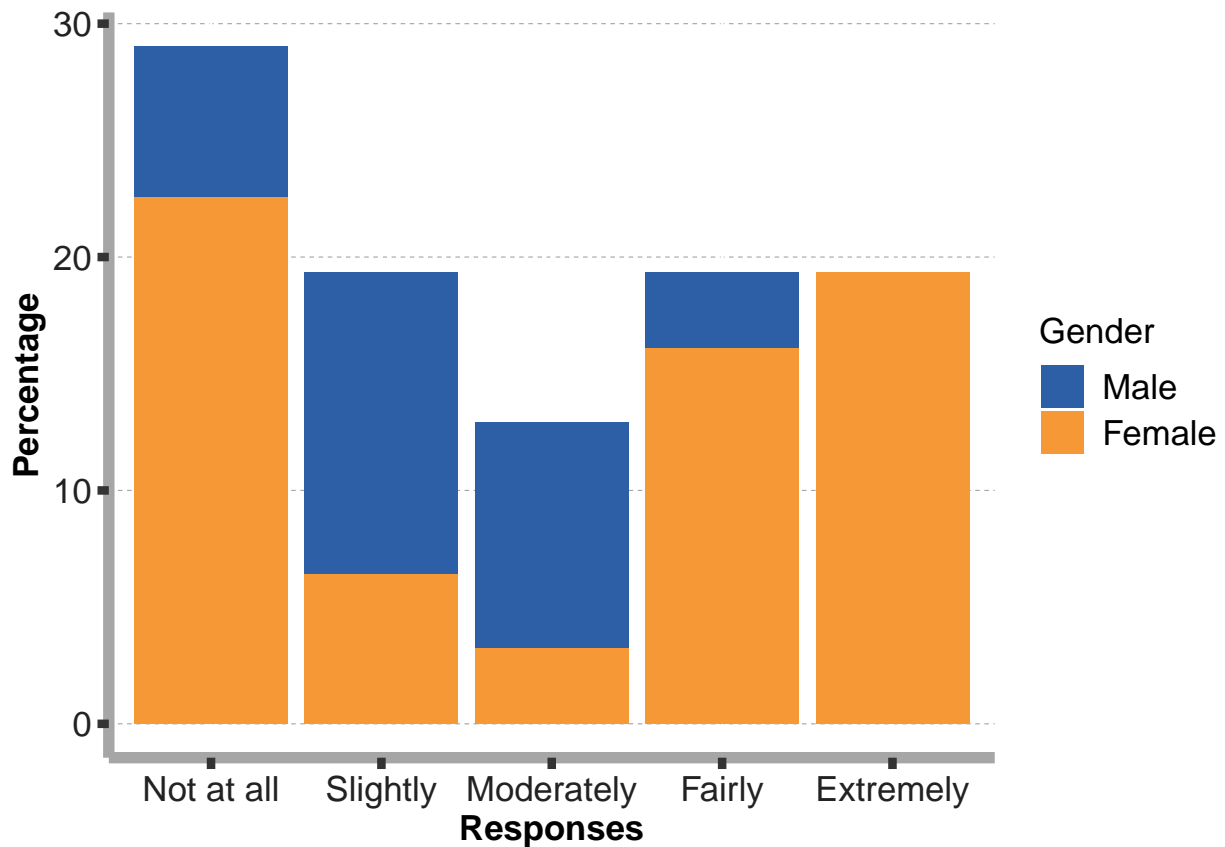
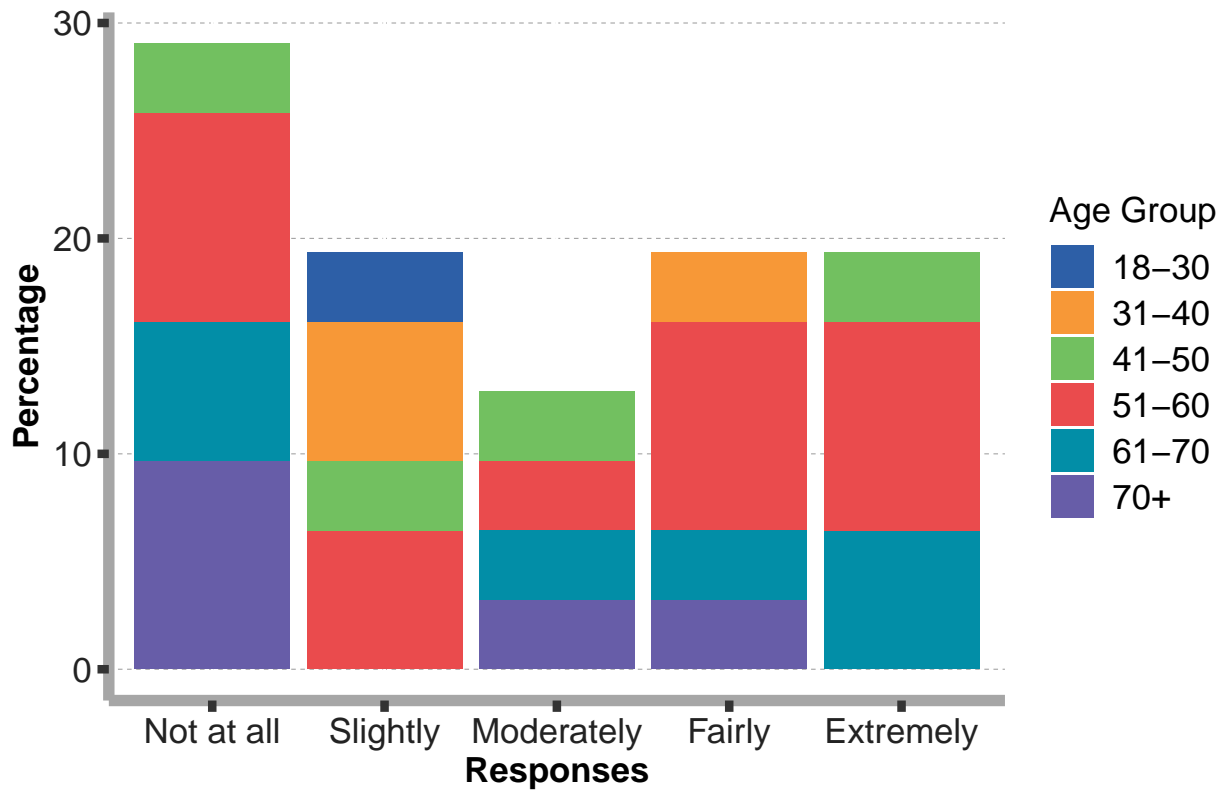
### Q3. I found it hard to get back to reality



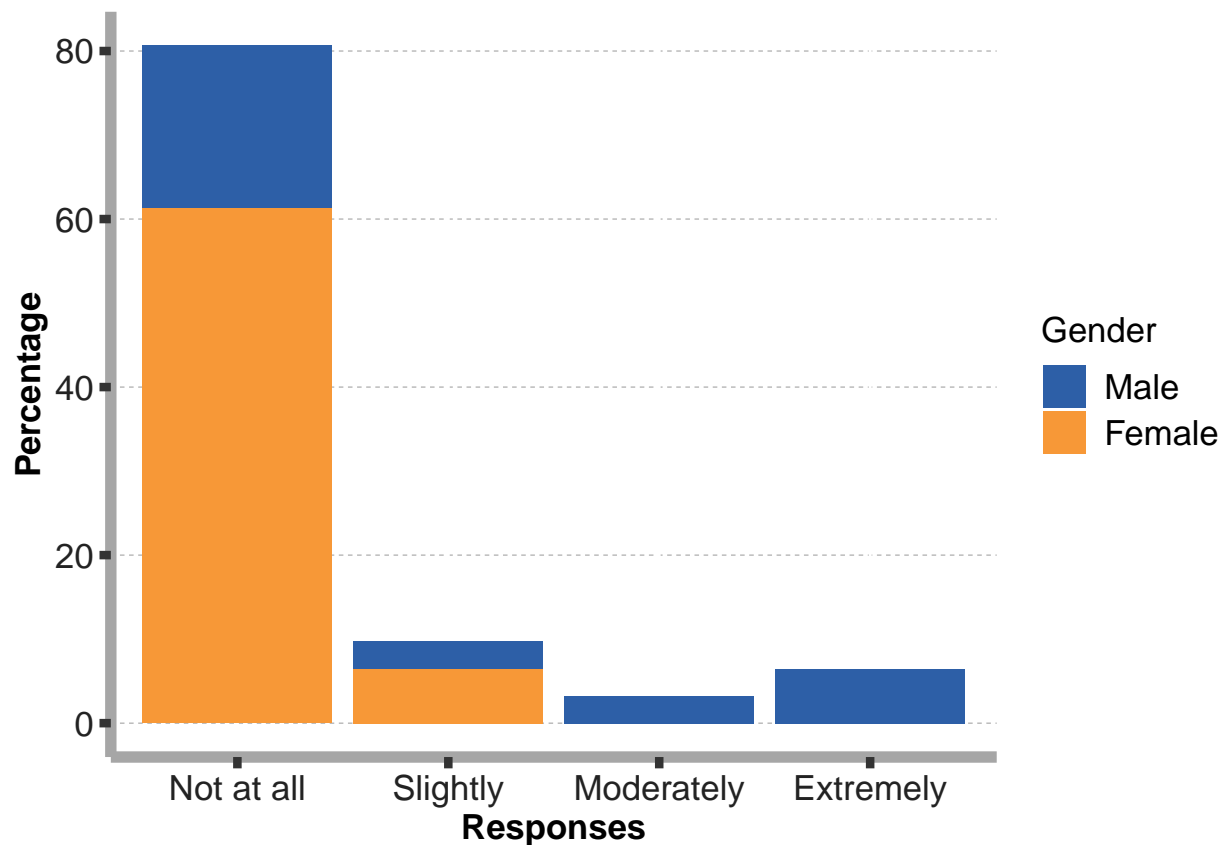
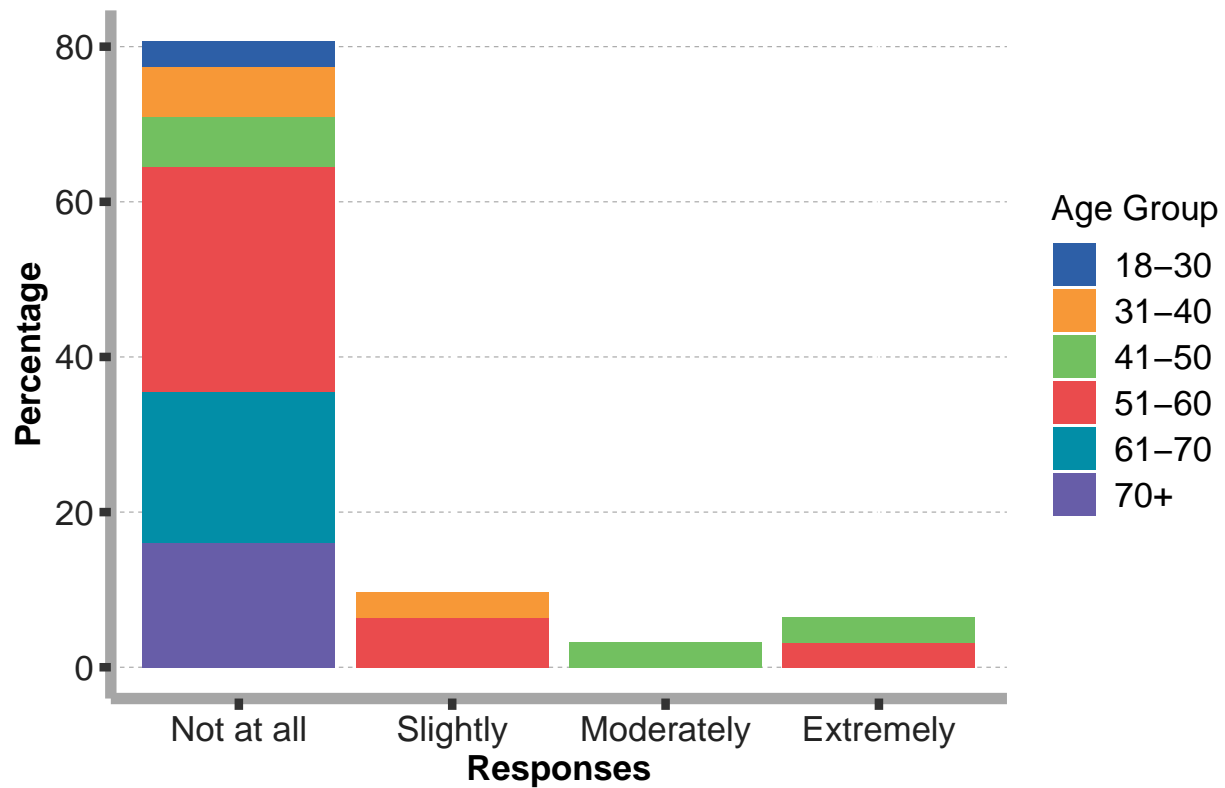
### Q4. I felt guilty



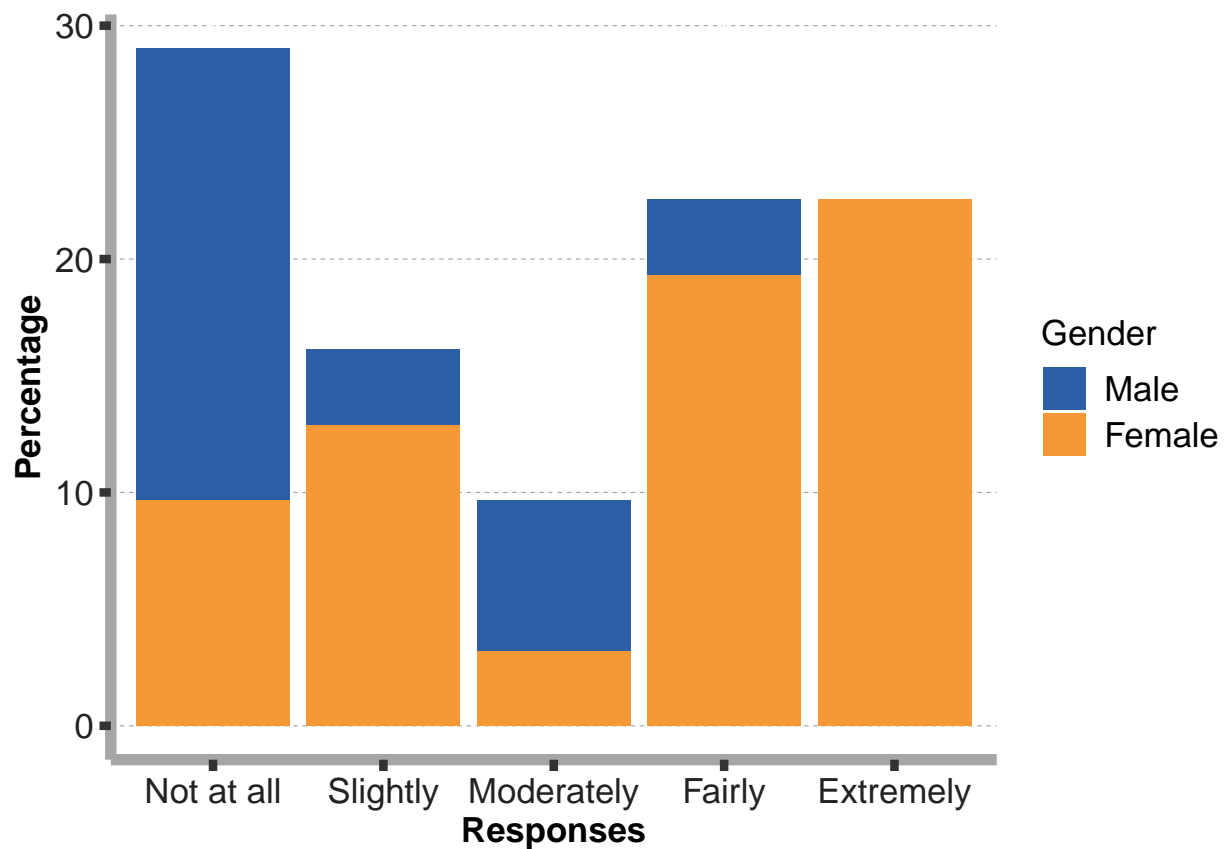
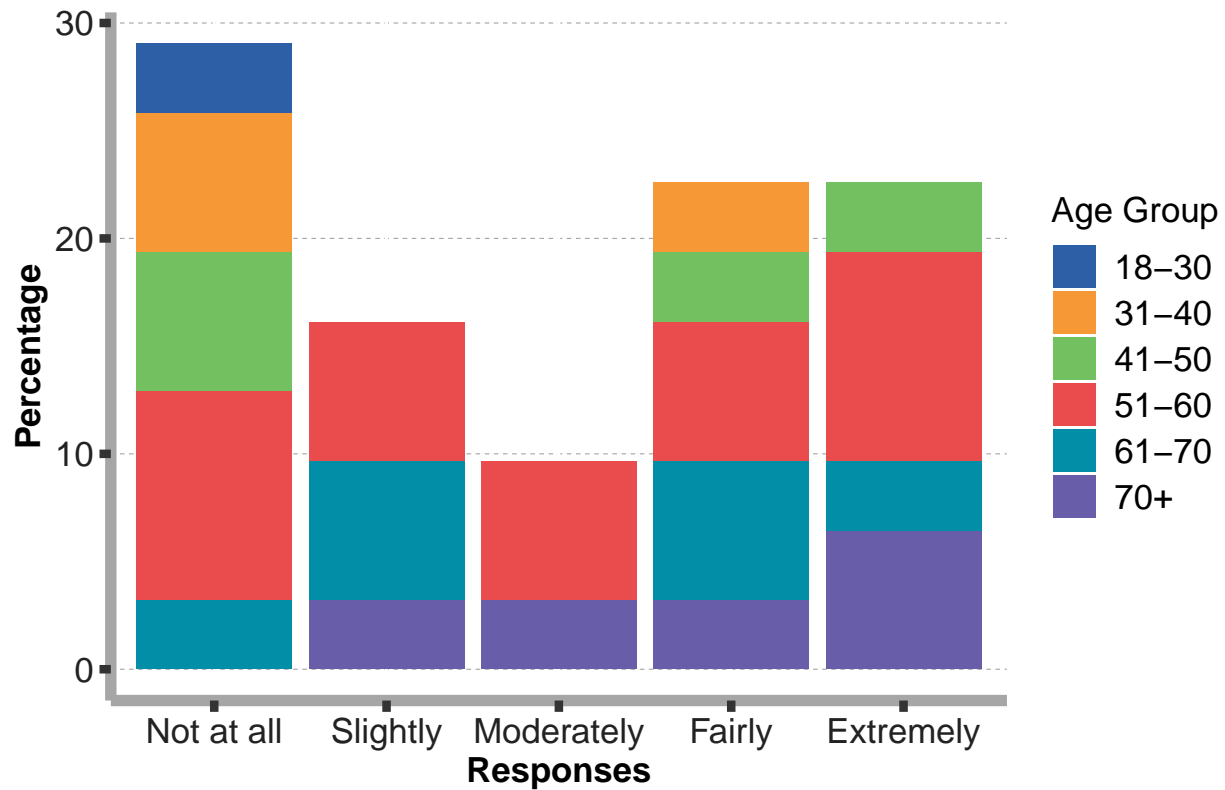
### Q5. It felt like a victory



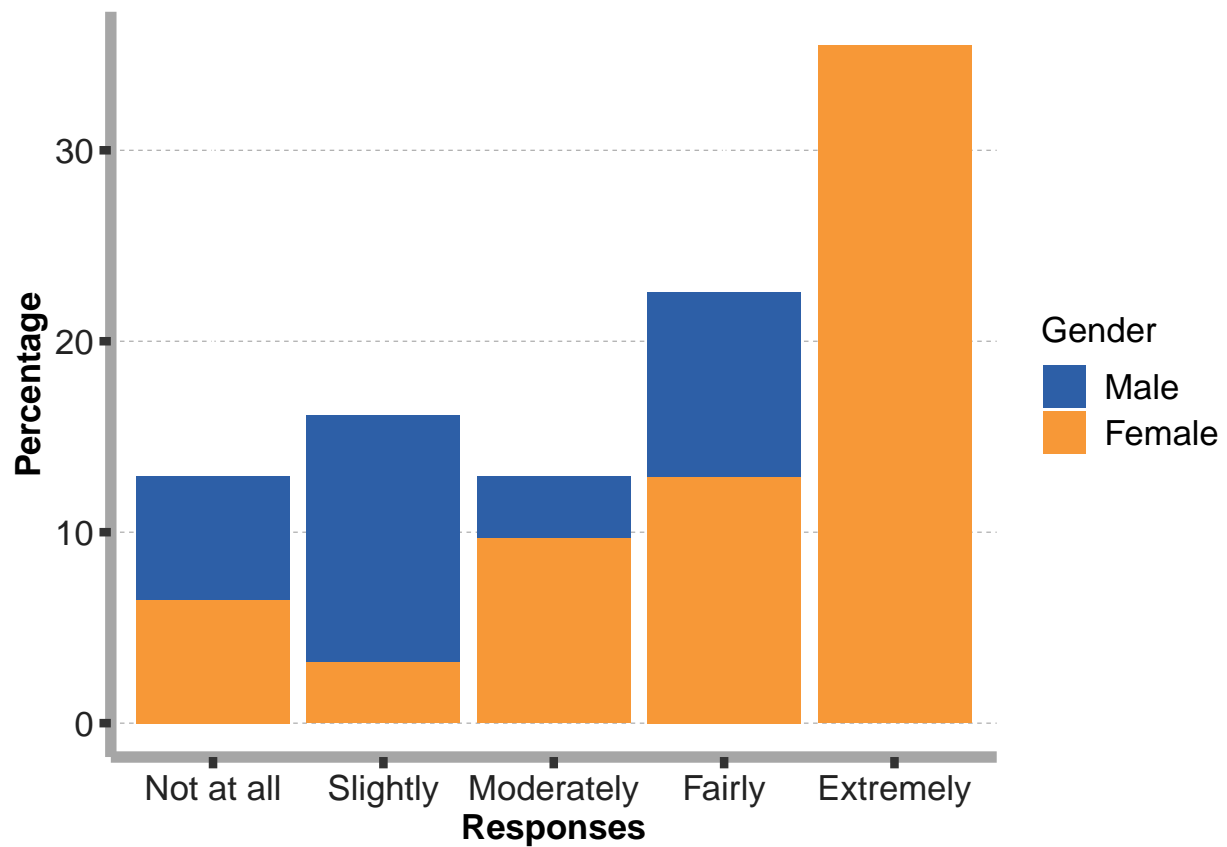
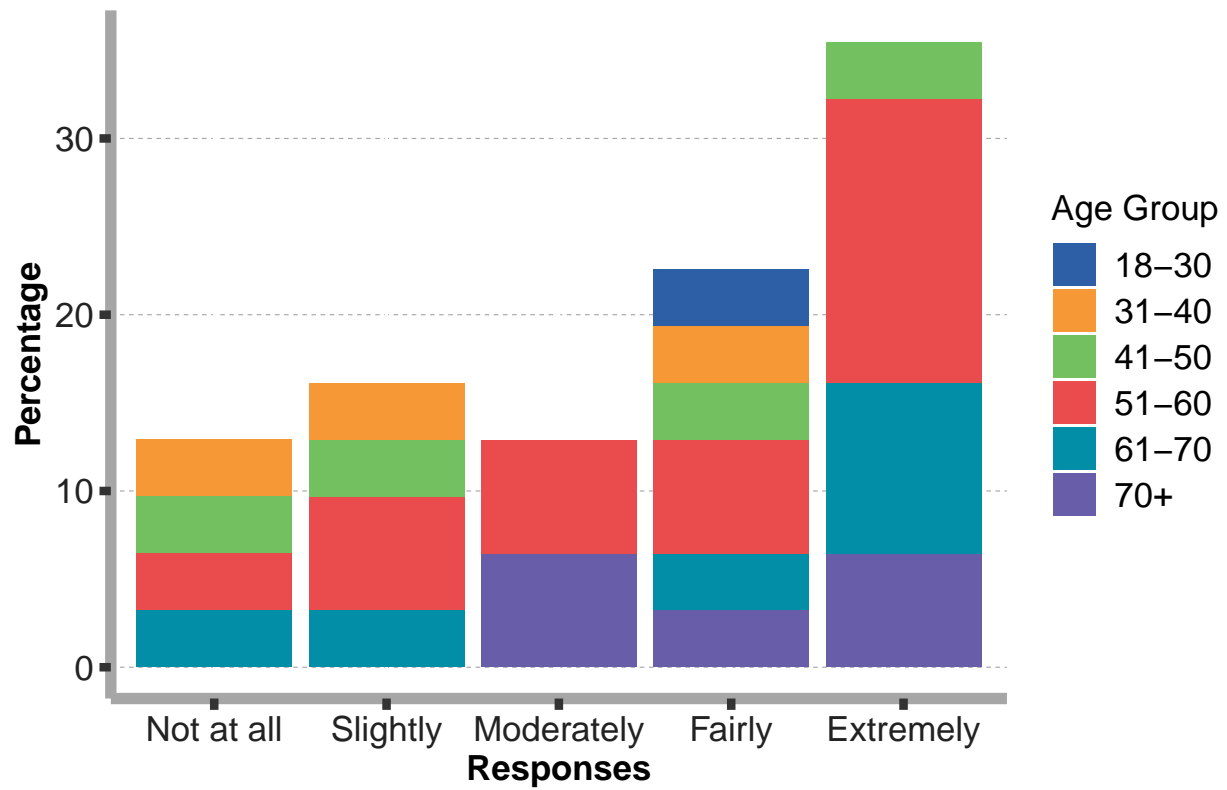
## Q6. I found it a waste of time



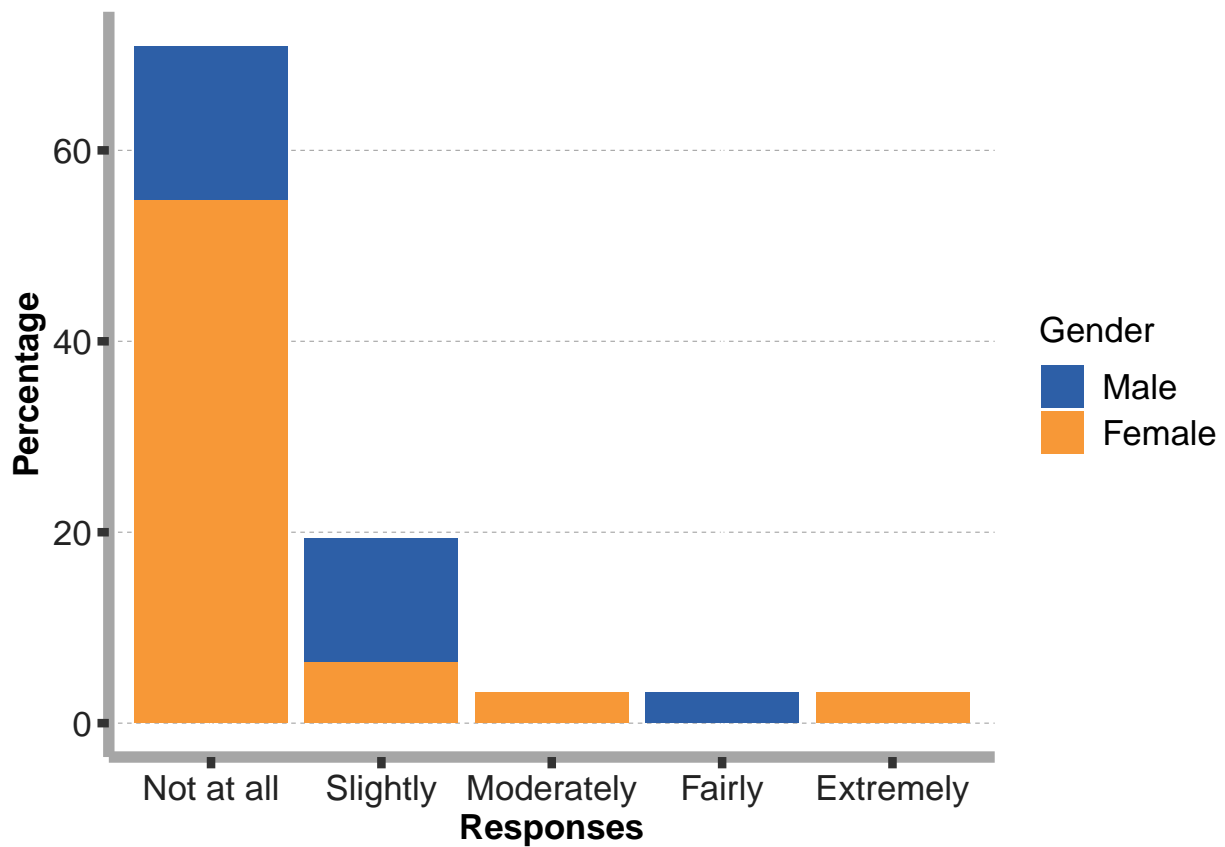
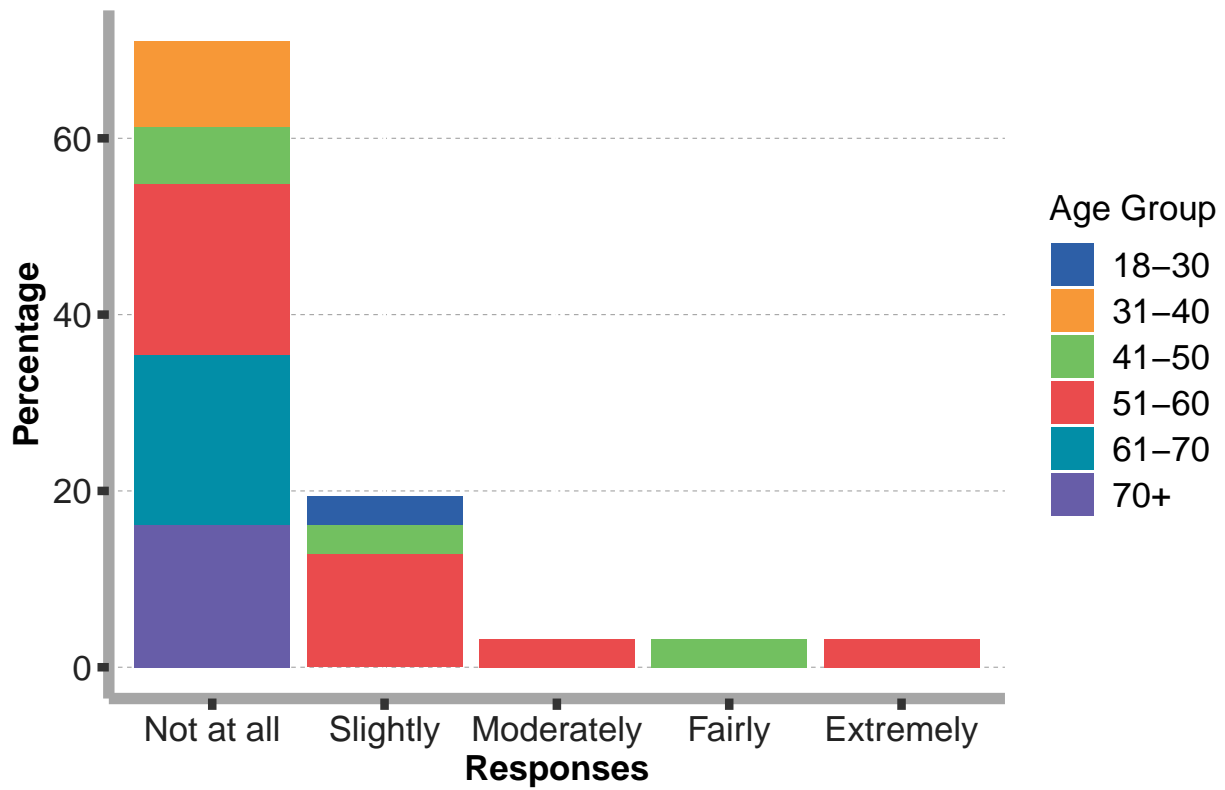
### Q7. I felt energised



## Q8. I felt satisfied

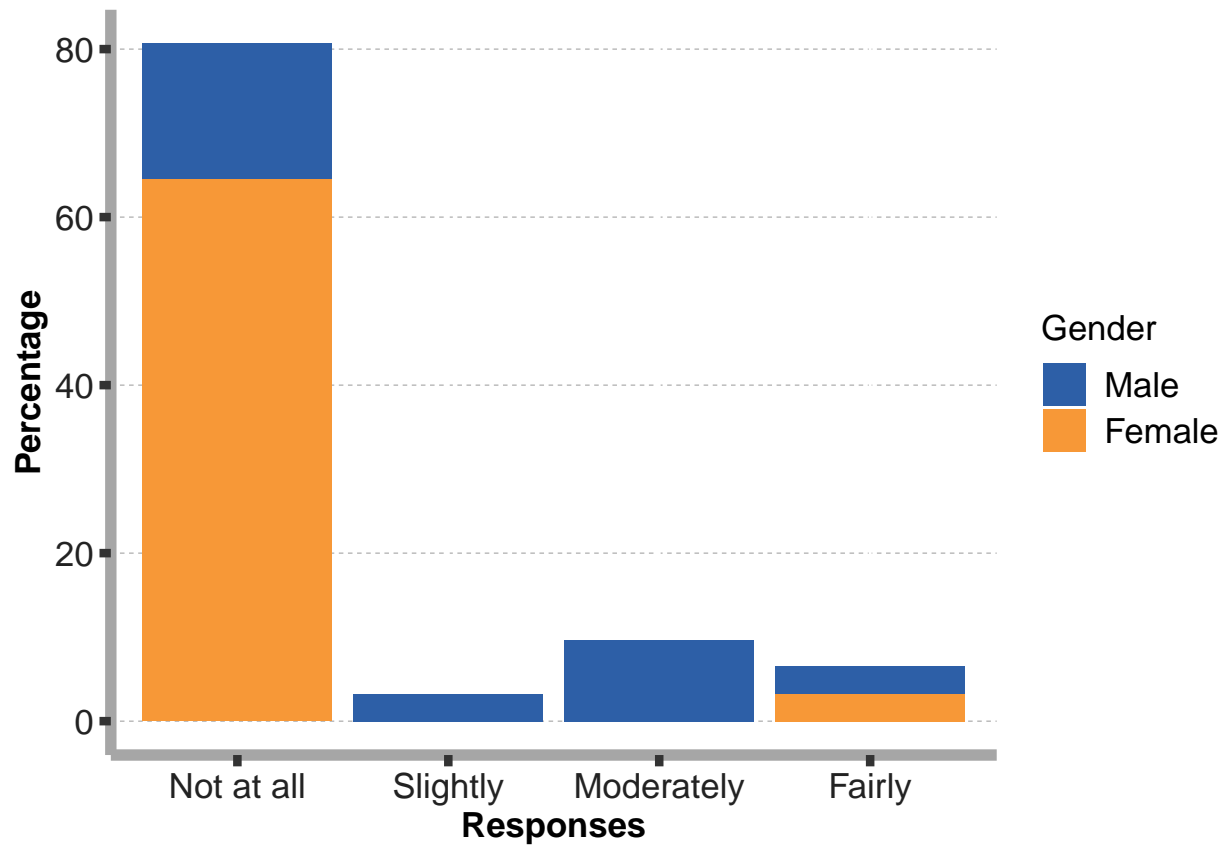
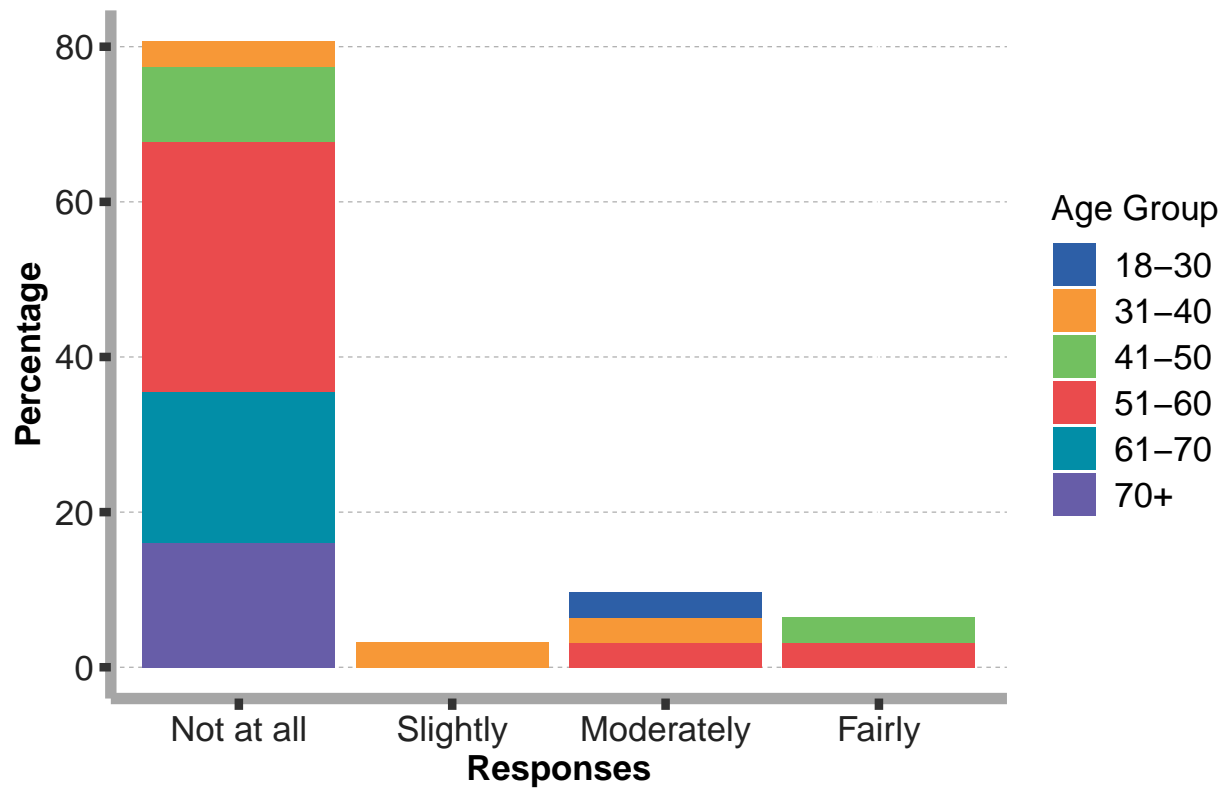


### Q9. I felt disoriented

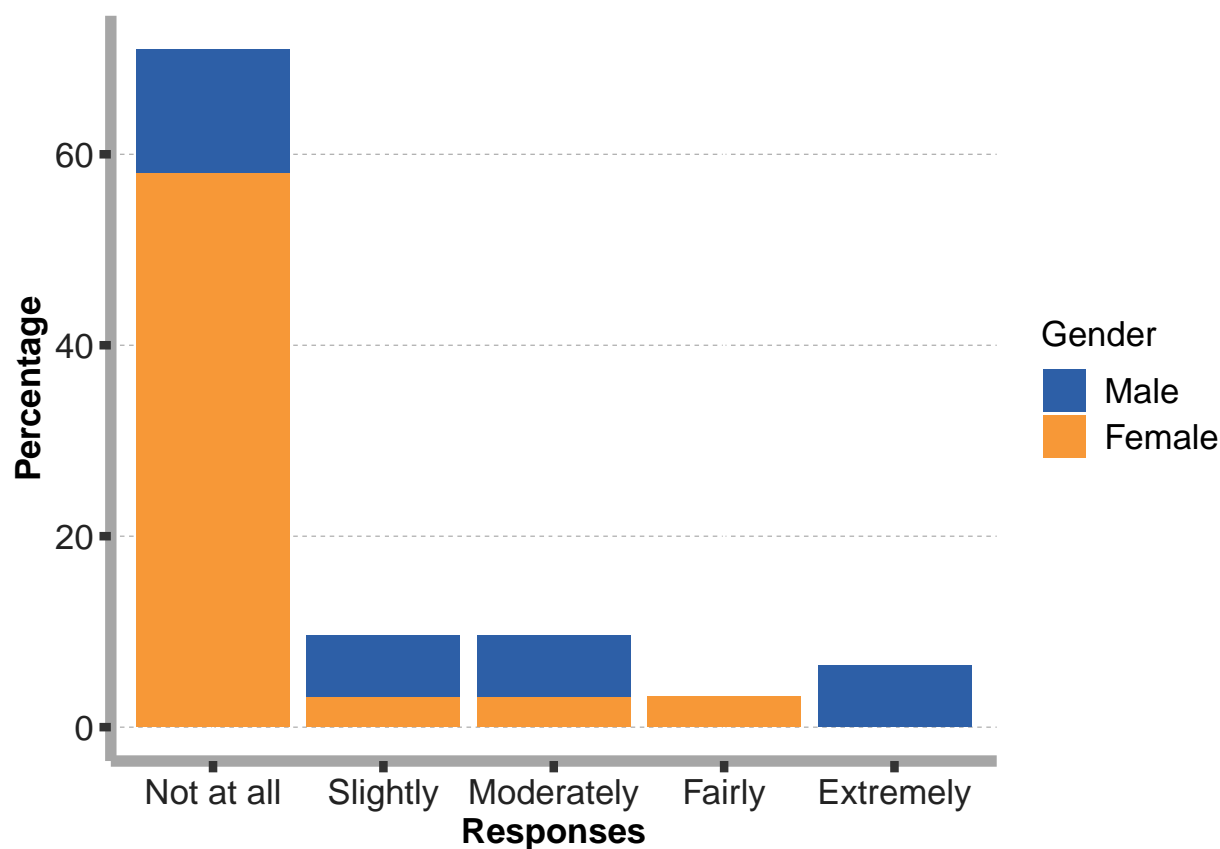
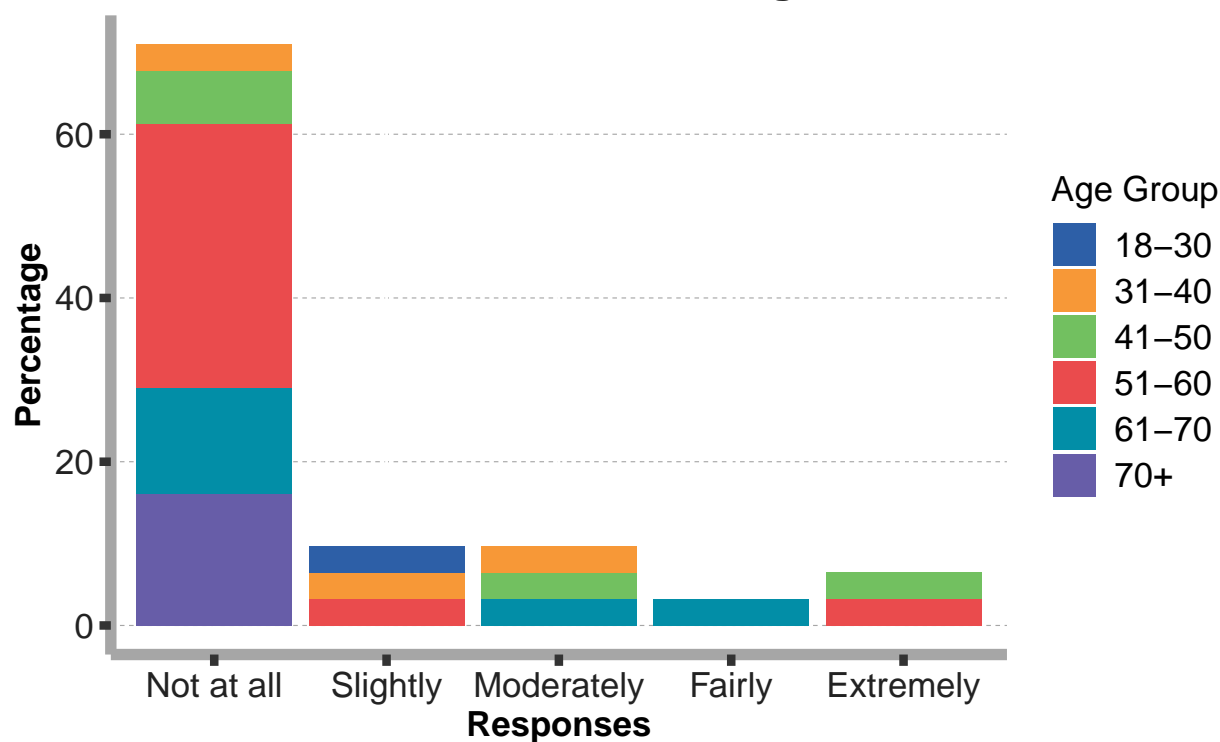




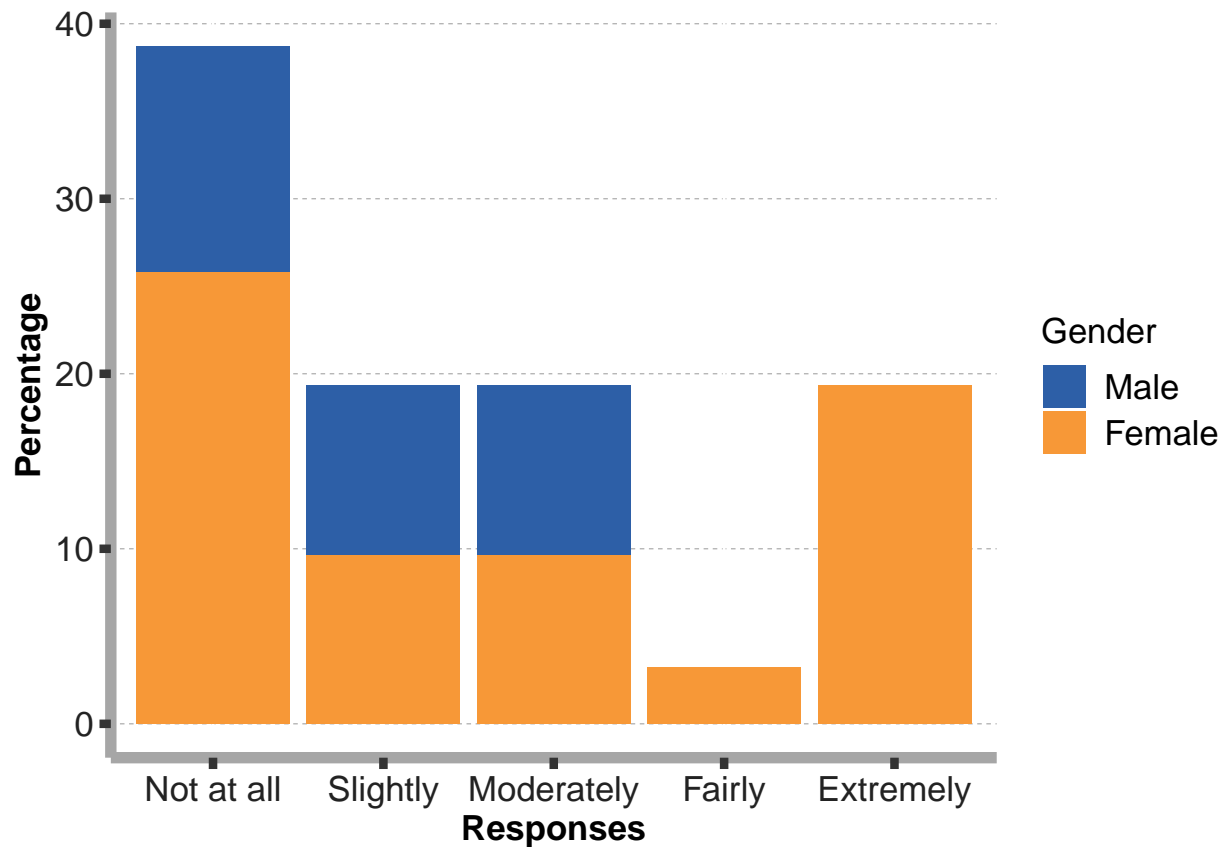
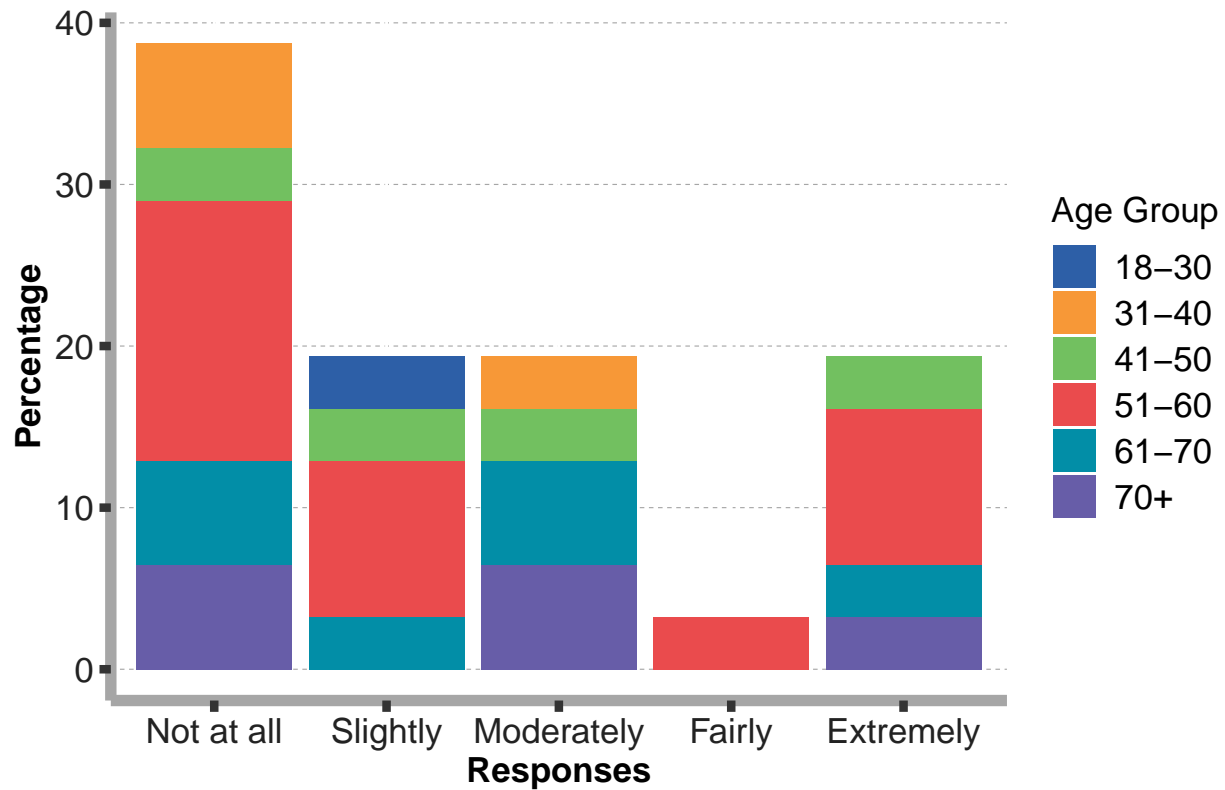
### Q10. I felt exhausted



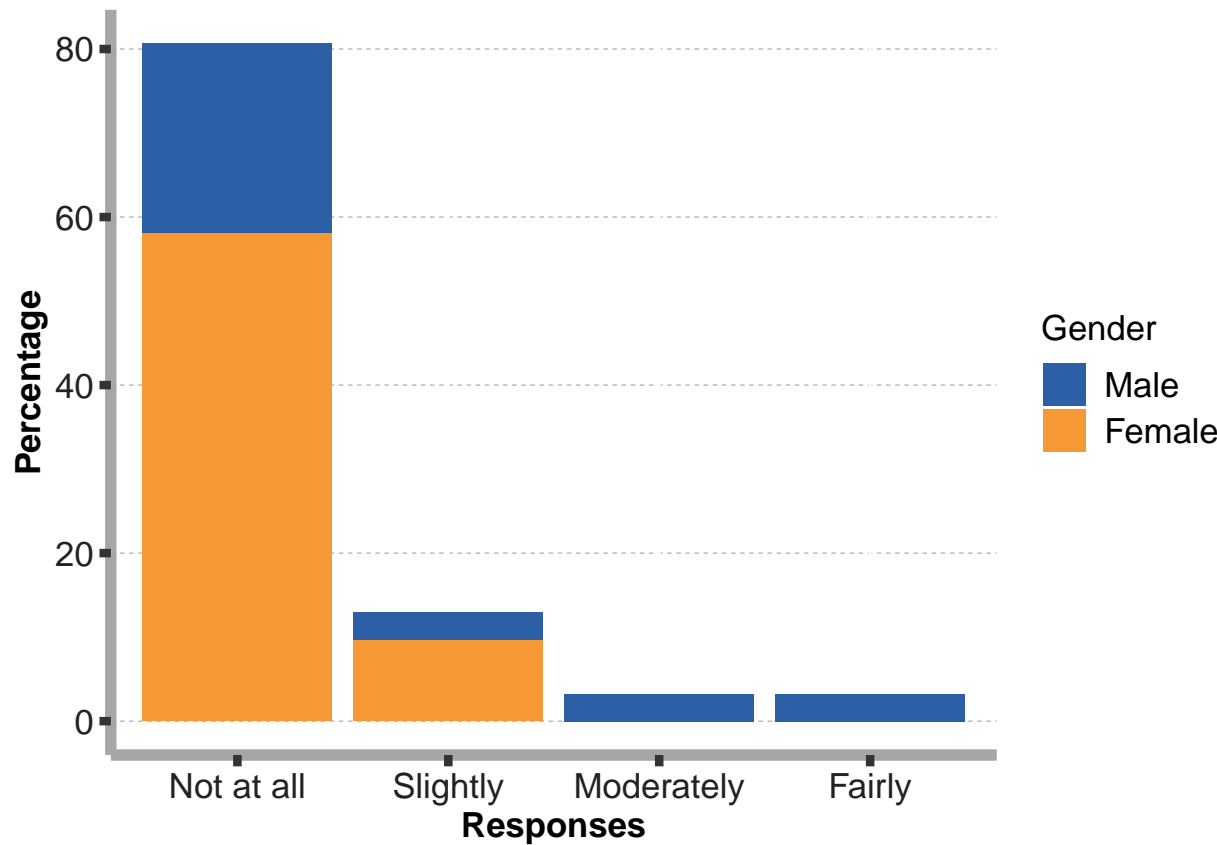
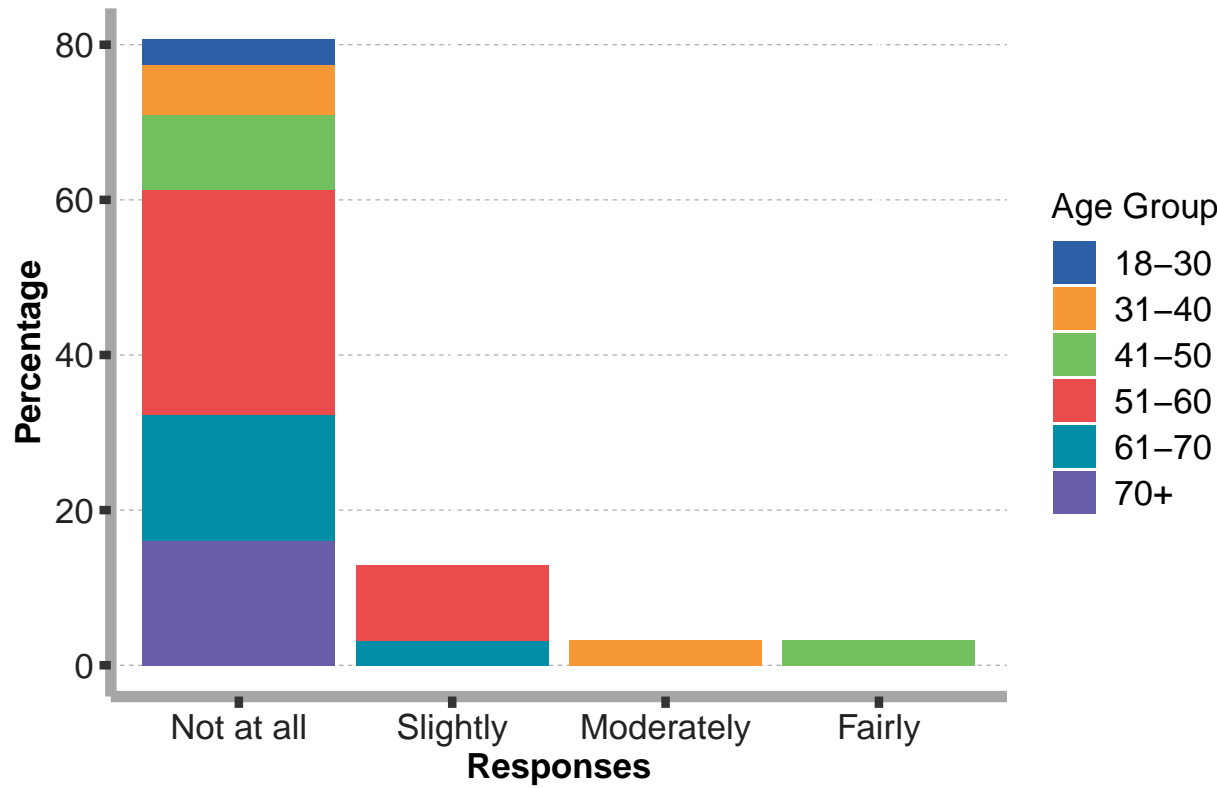
### Q11. I felt that I could have done more useful things



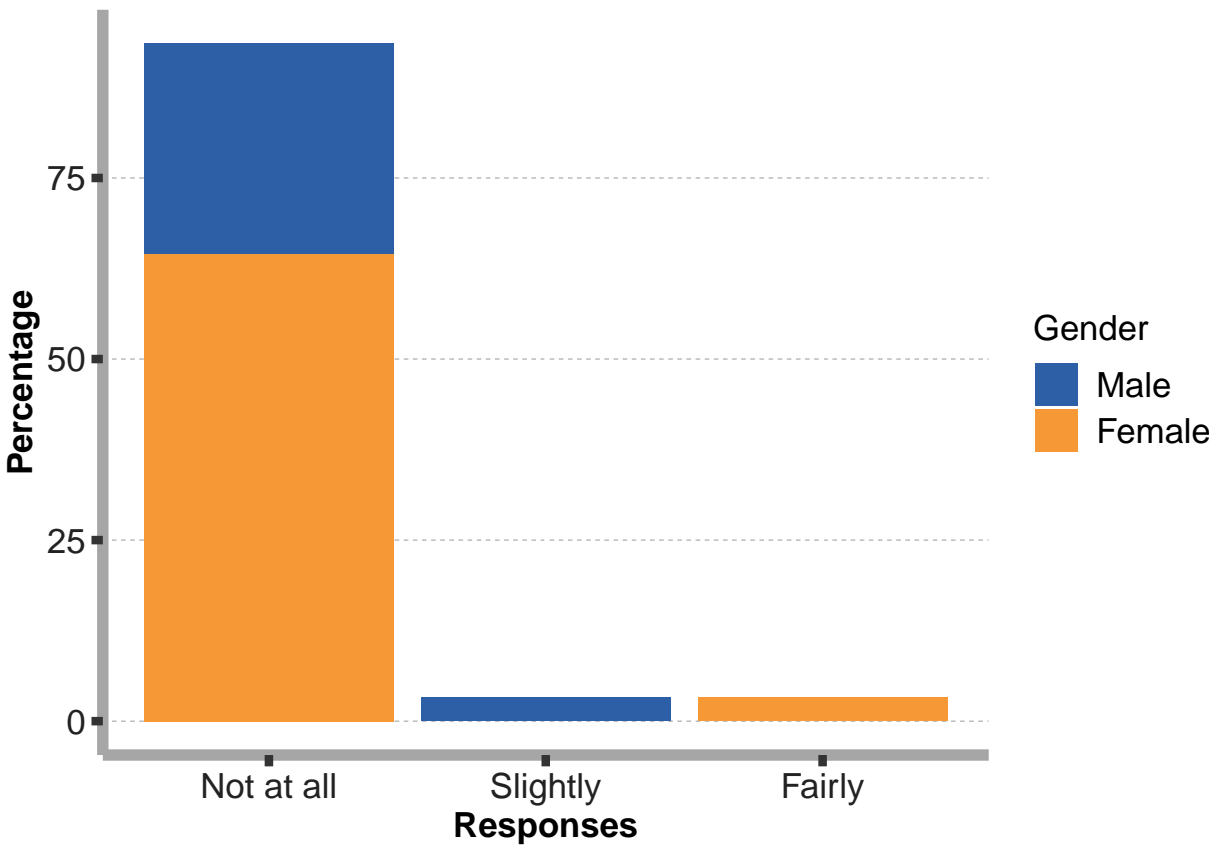
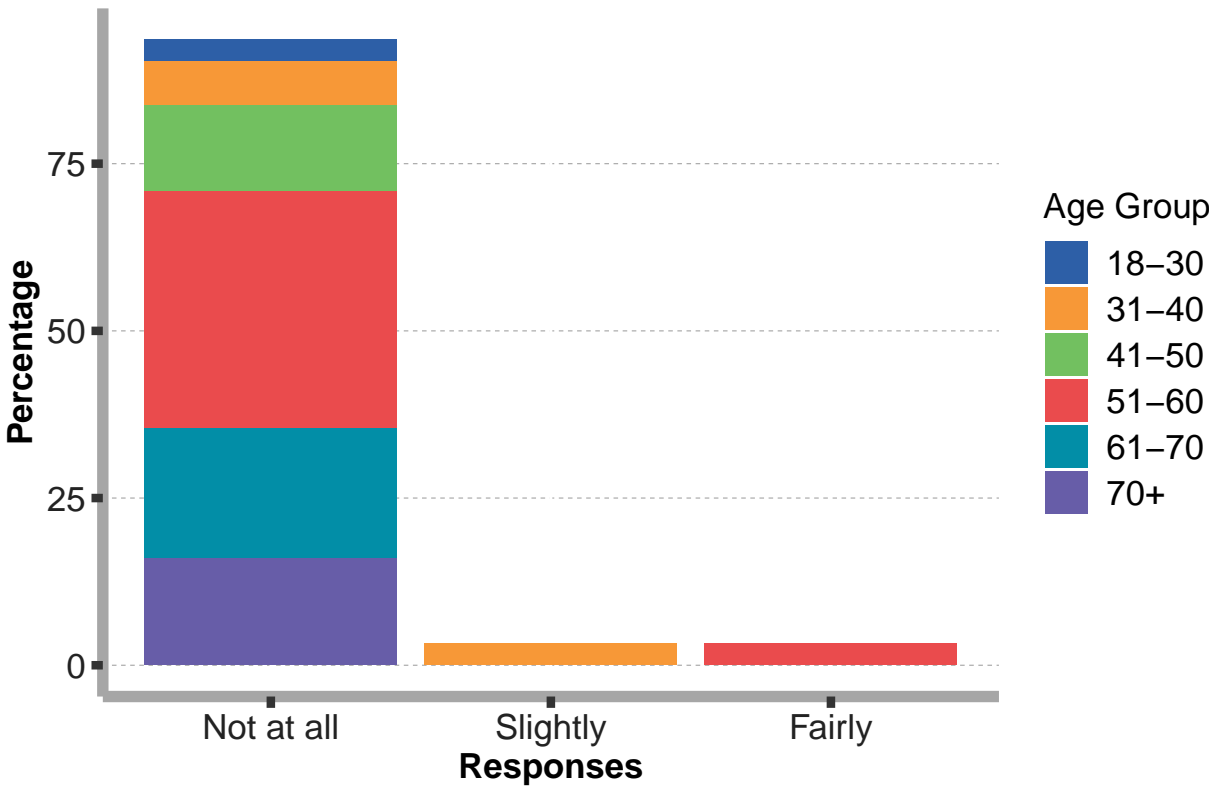
## Q12. I felt powerful



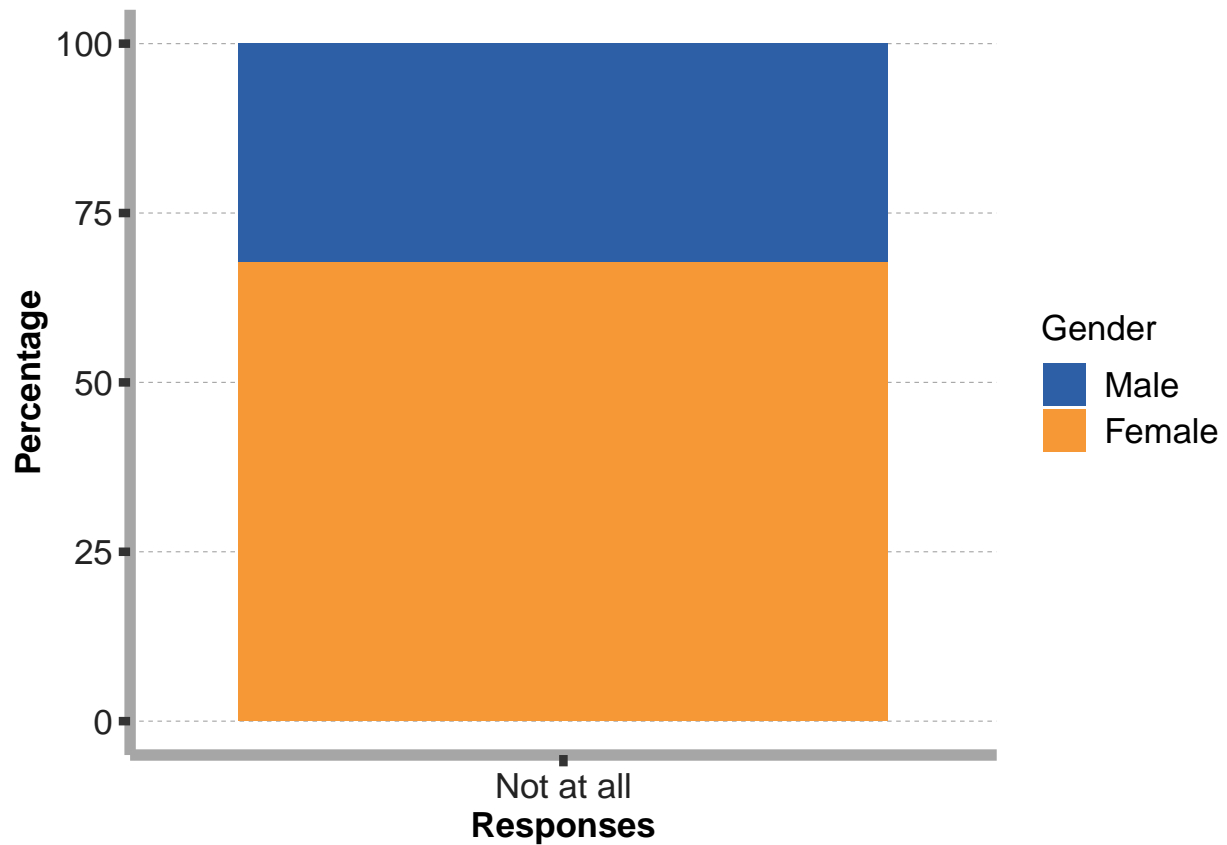
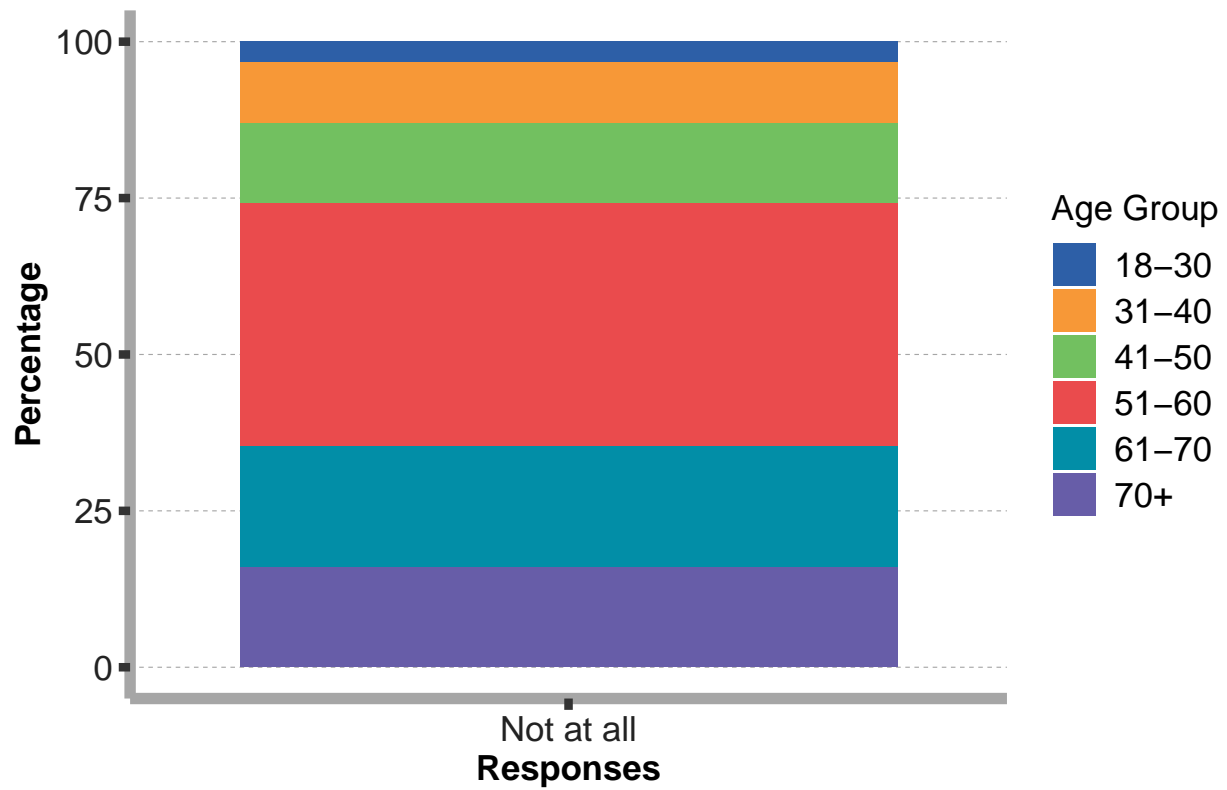
Q13. I felt weary



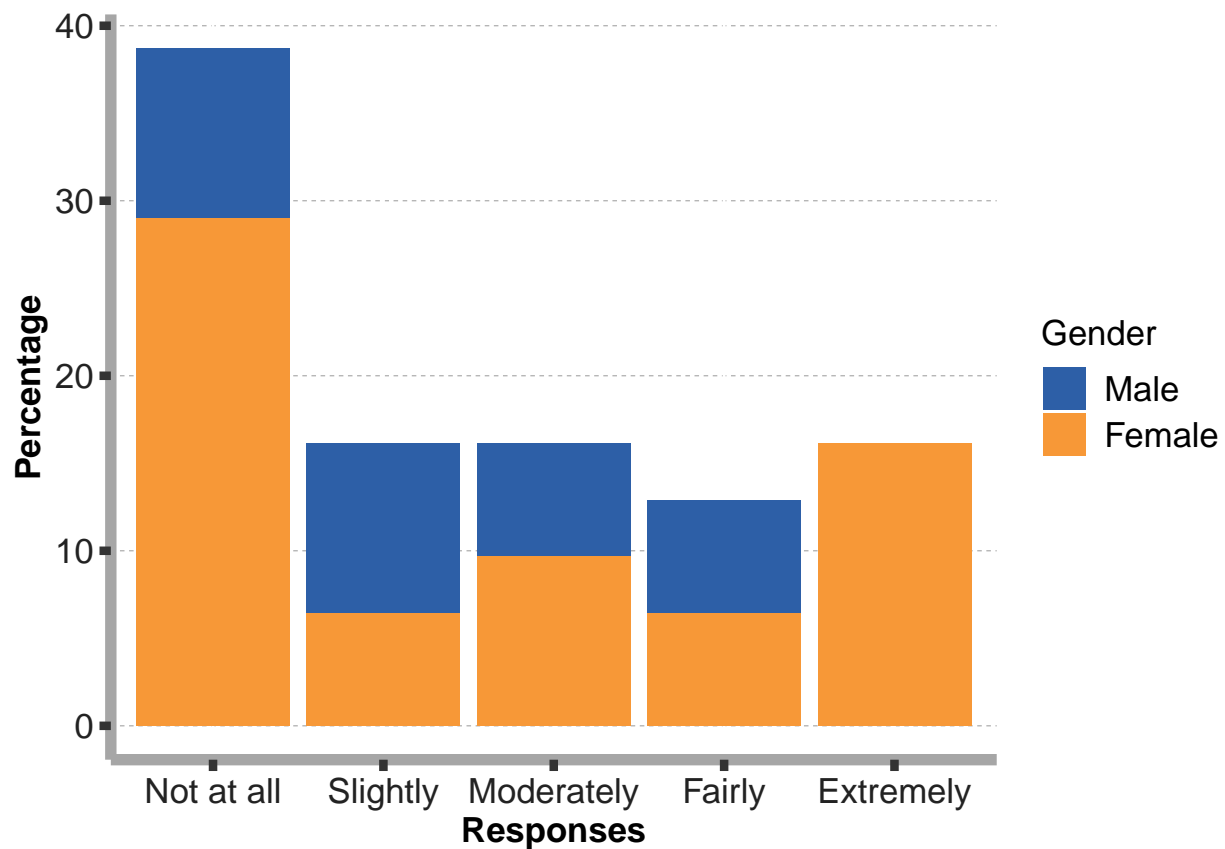
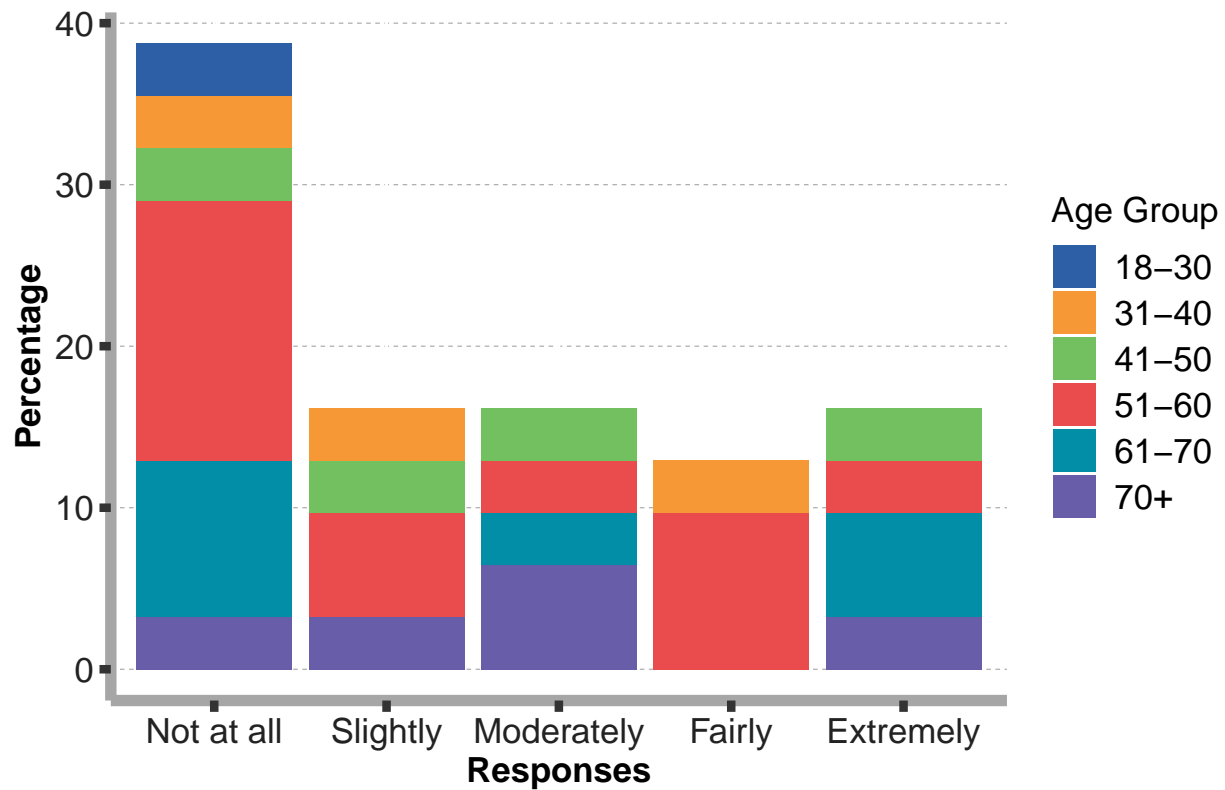
Q14. I felt regret



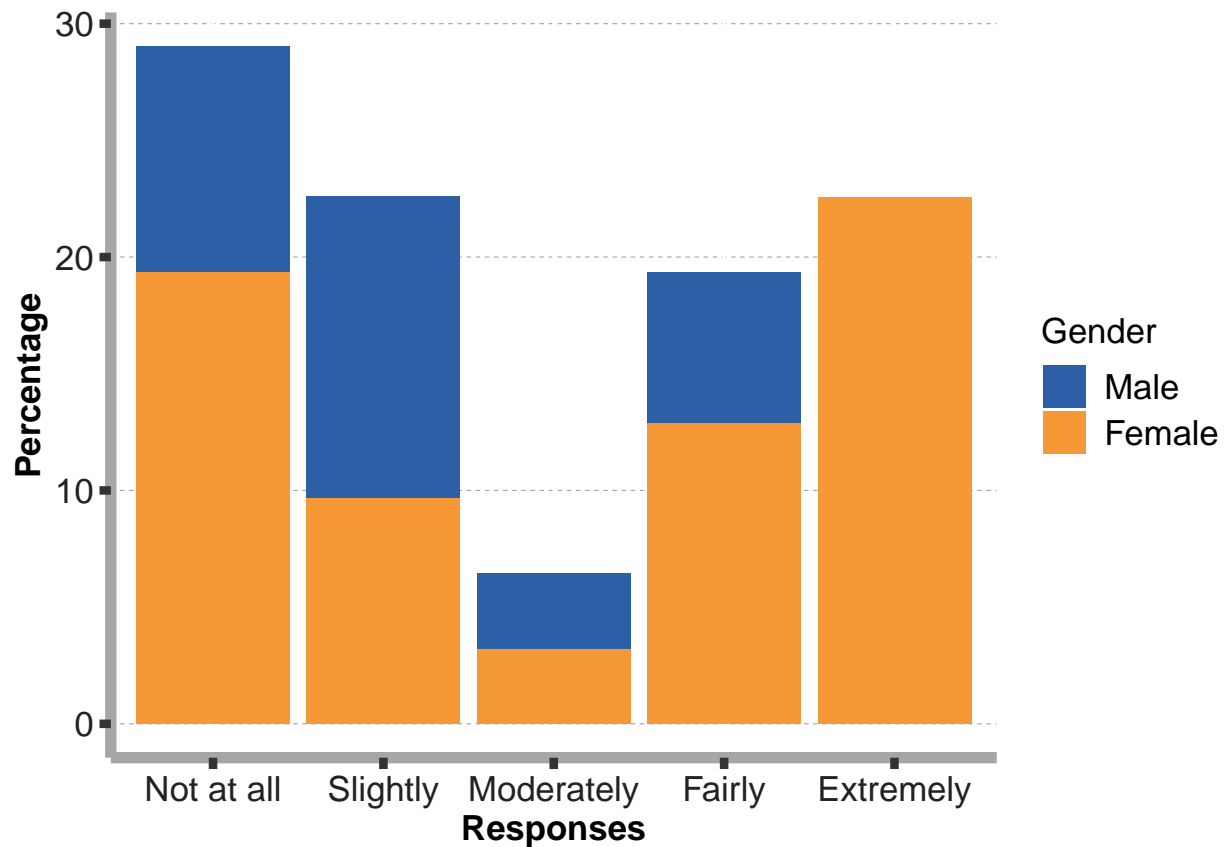
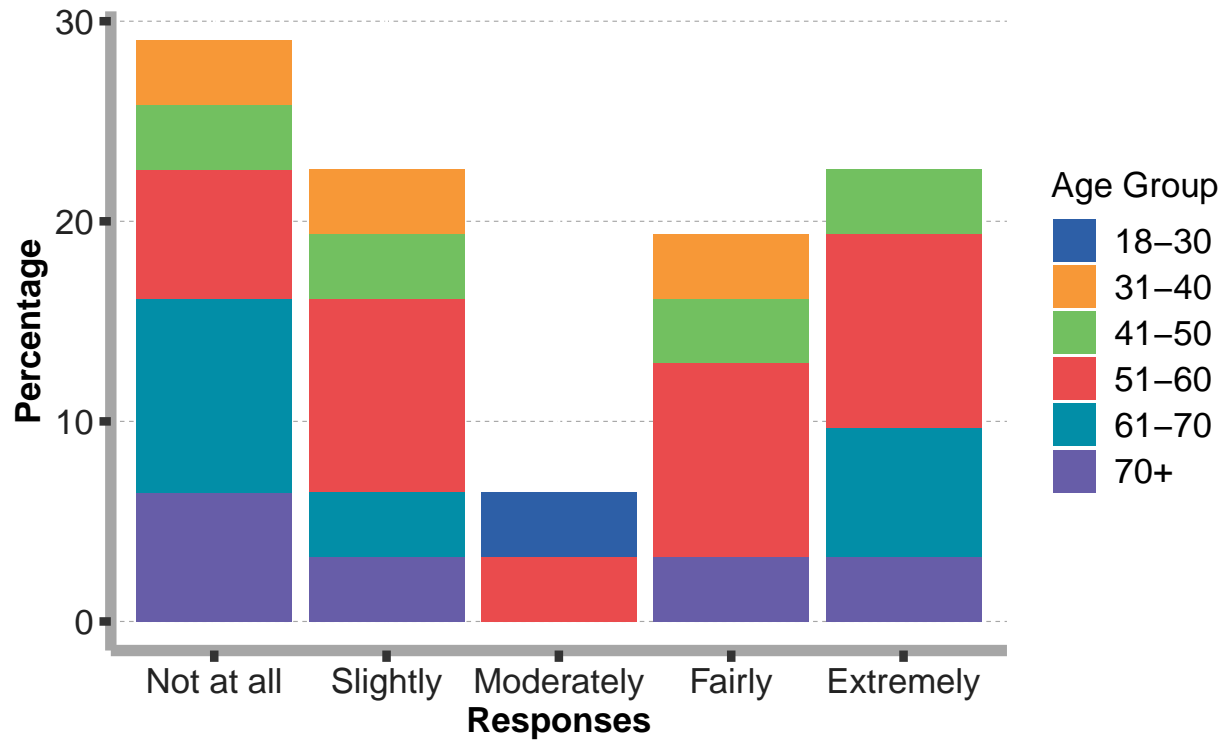
### Q15. I felt ashamed



## Q16. I felt proud



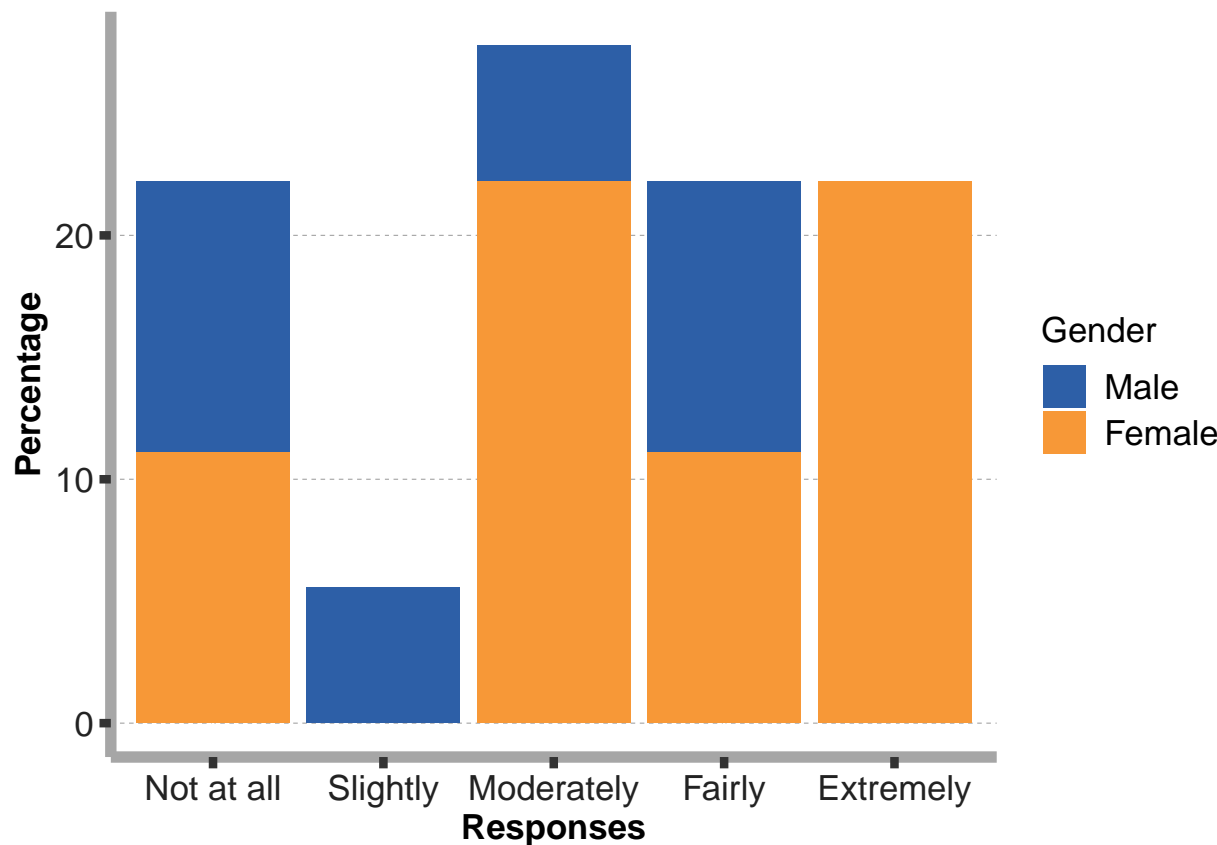
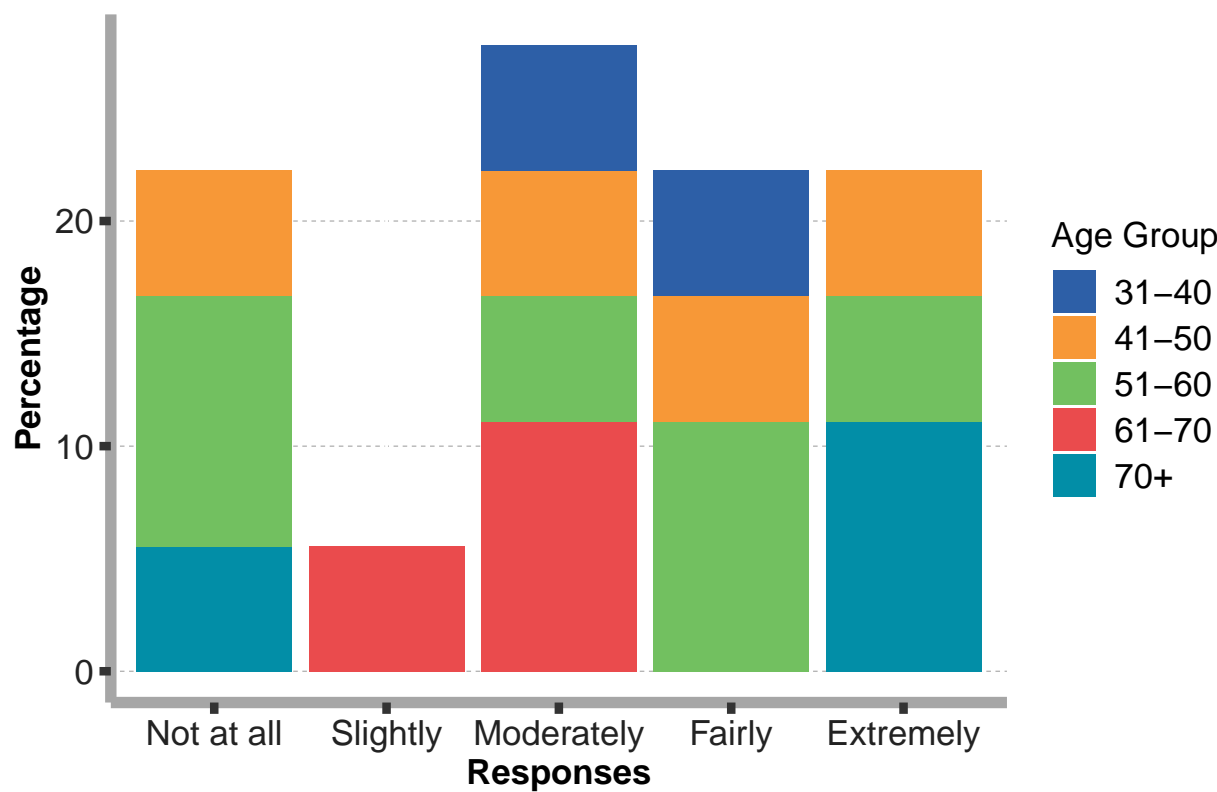
**Q17. I had a sense that I had returned from a journey**



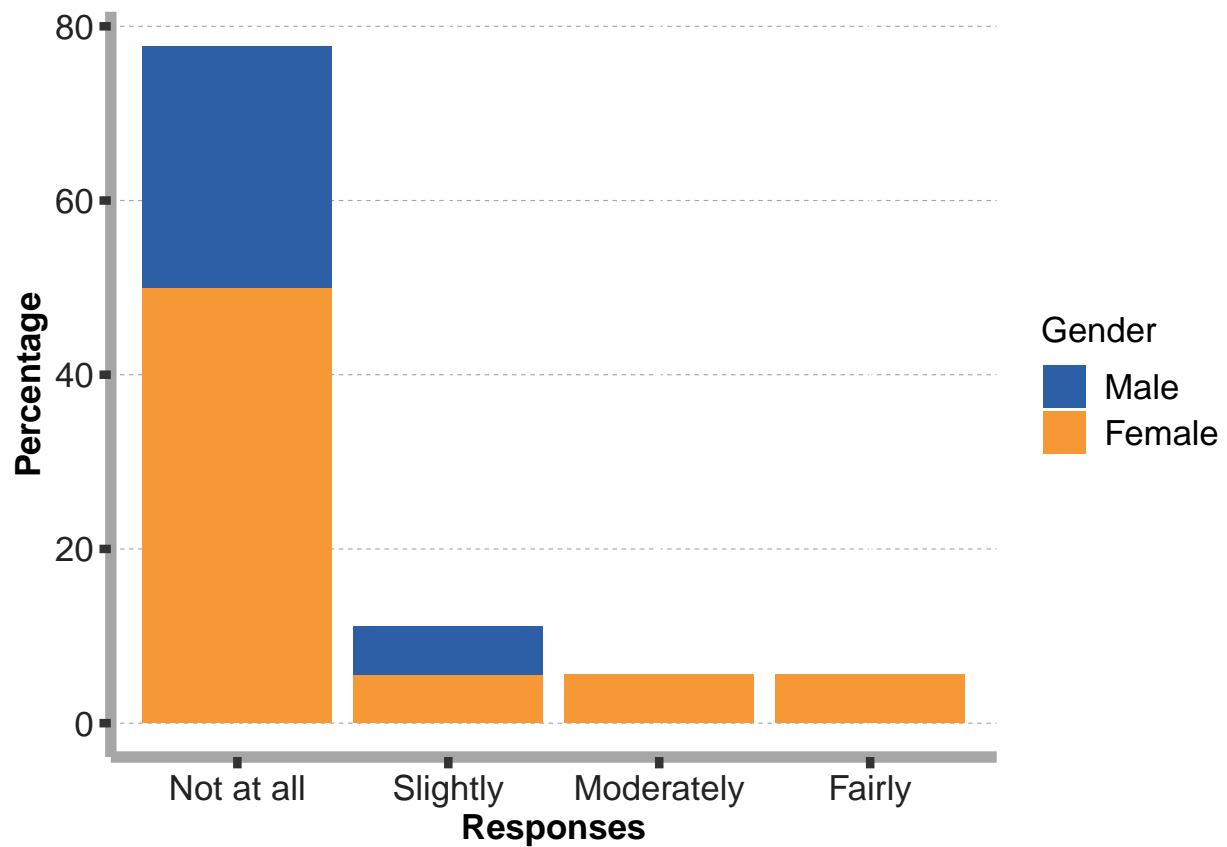
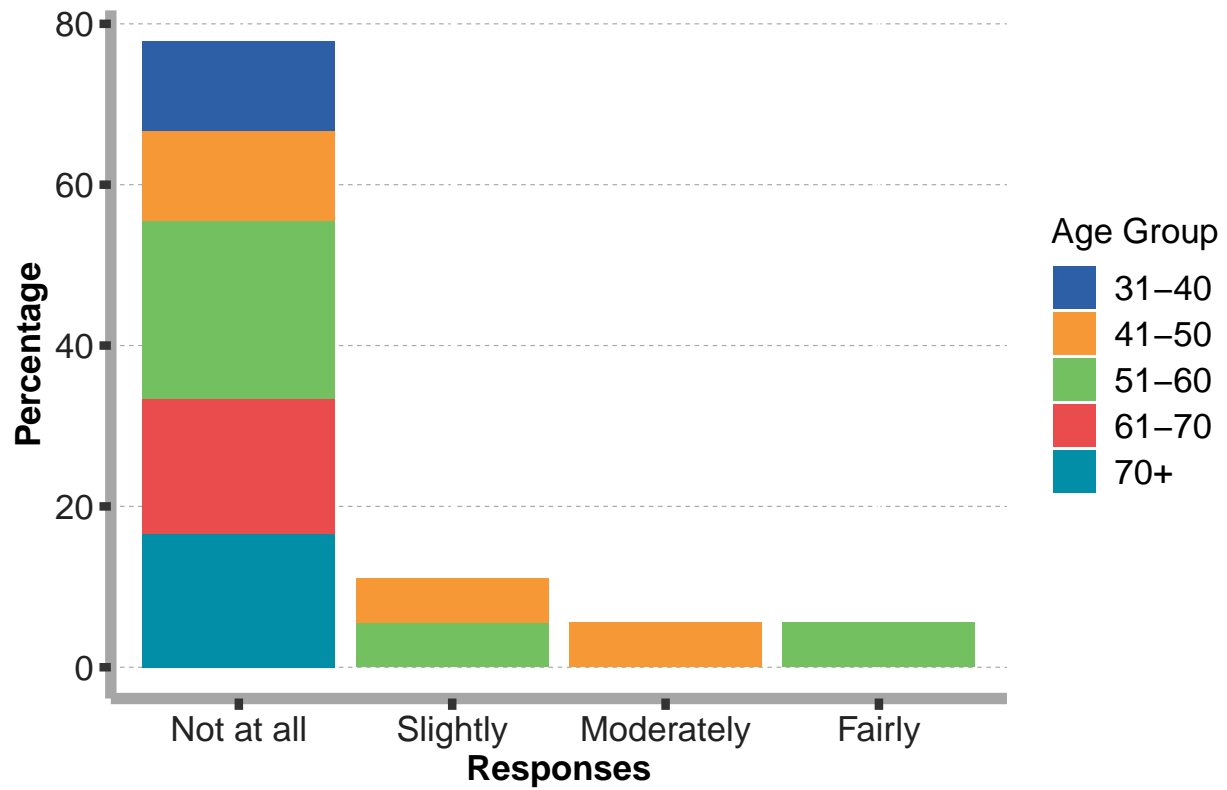


## Post-game Module - Oculus Rift

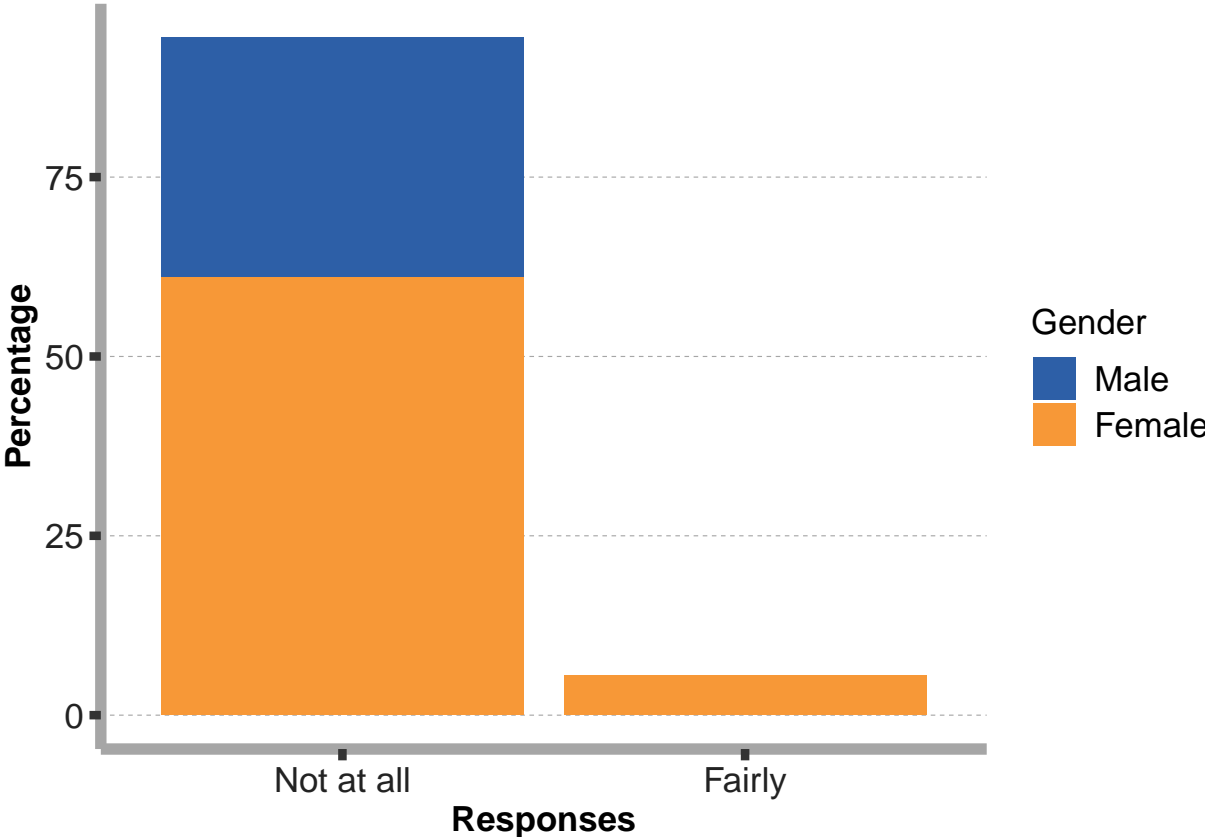
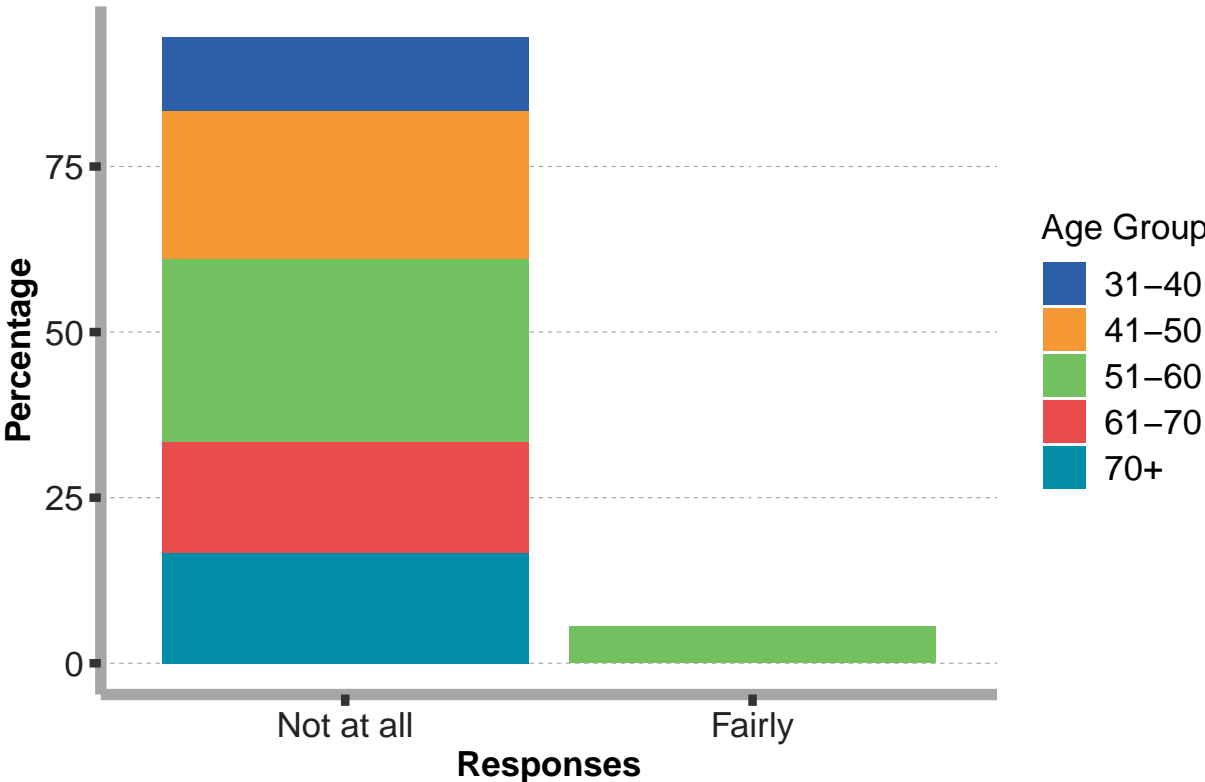
Q1. I felt revived



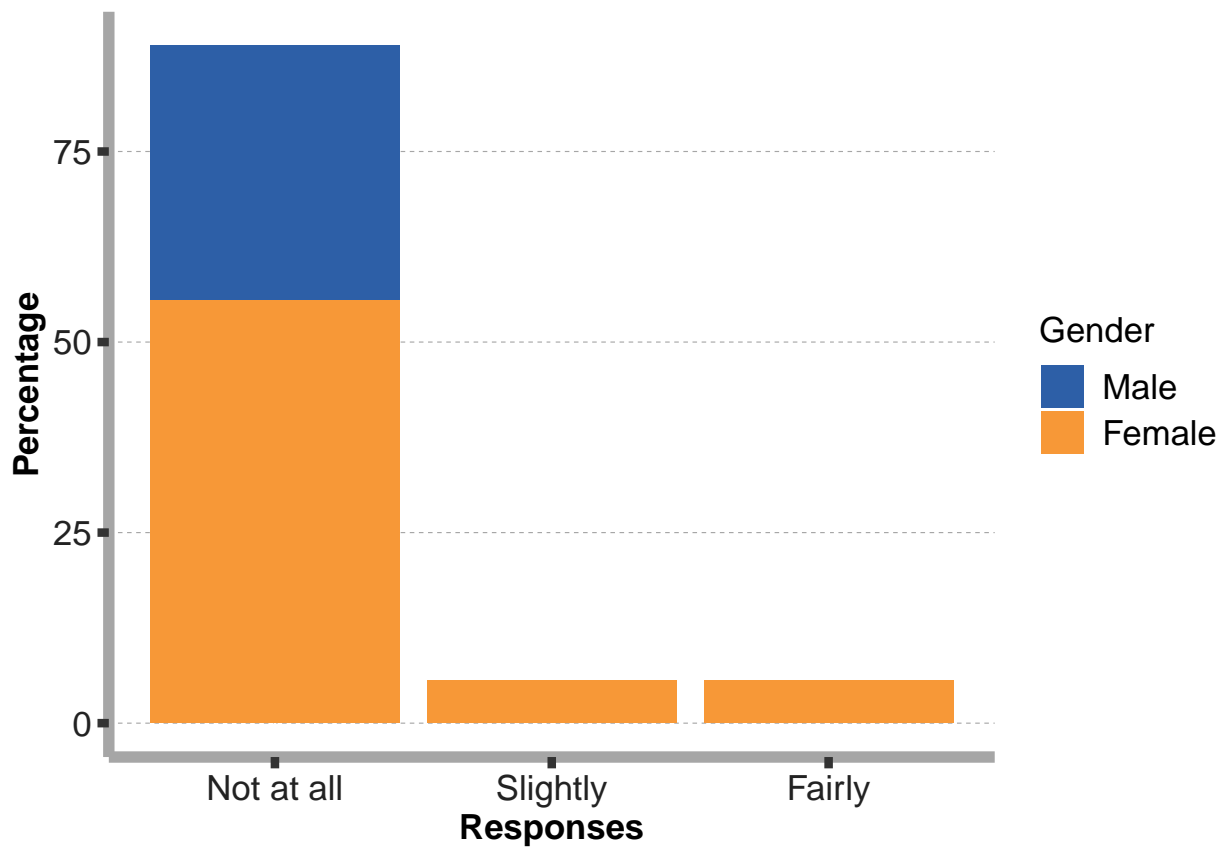
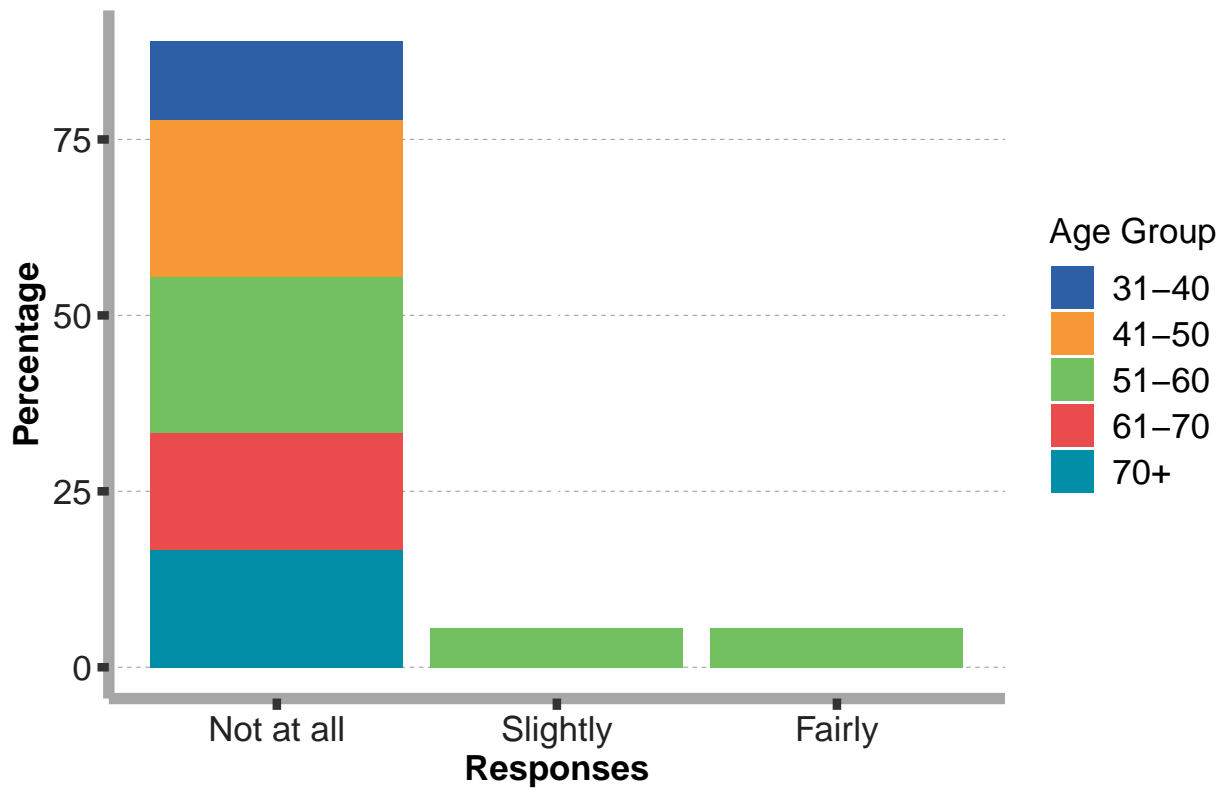
## Q2. I felt bad



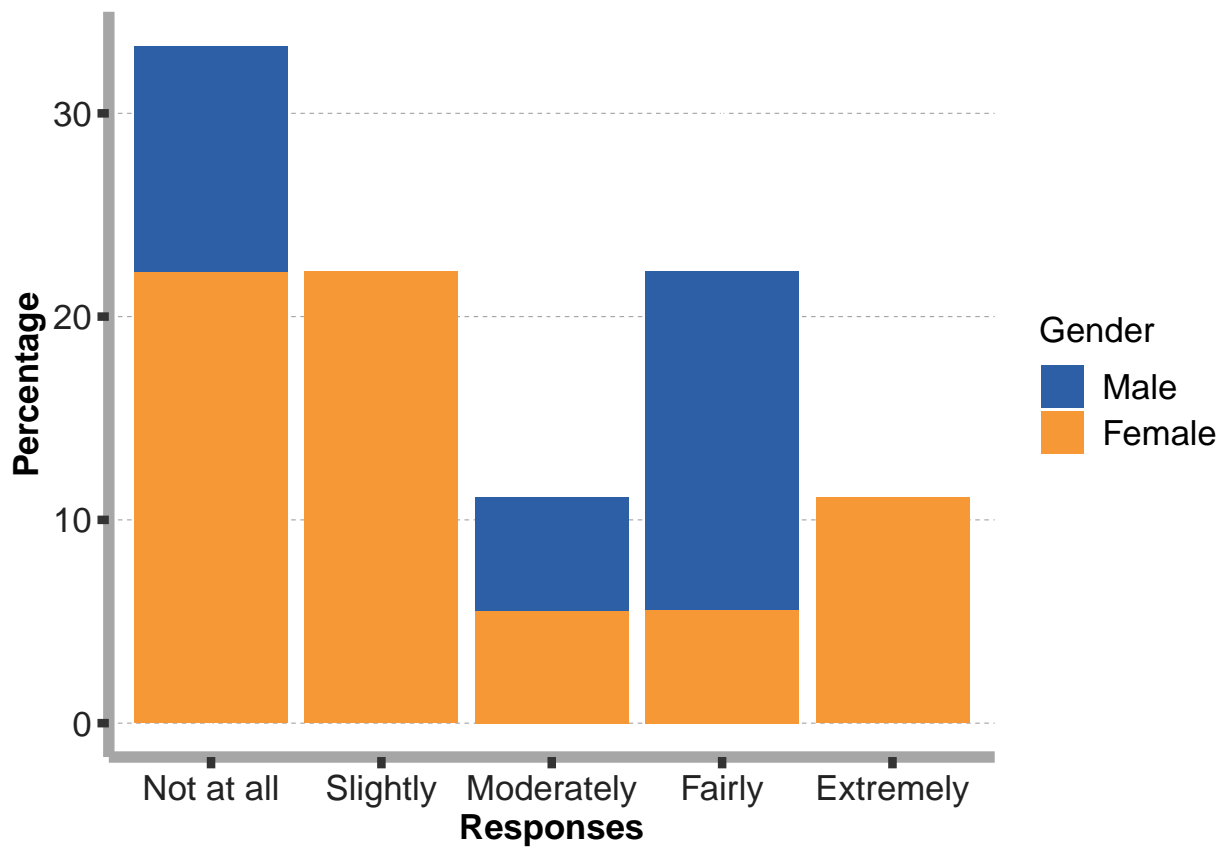
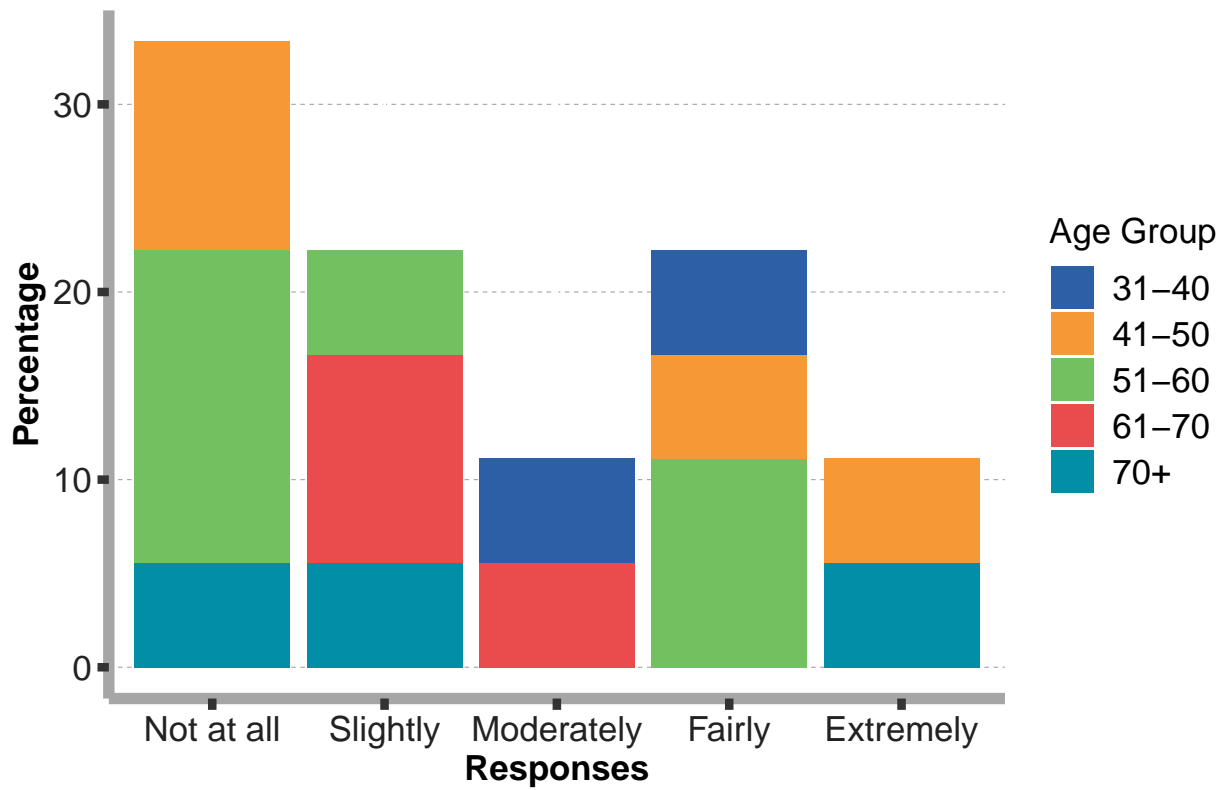
**Q3. I found it hard to get back to reality**



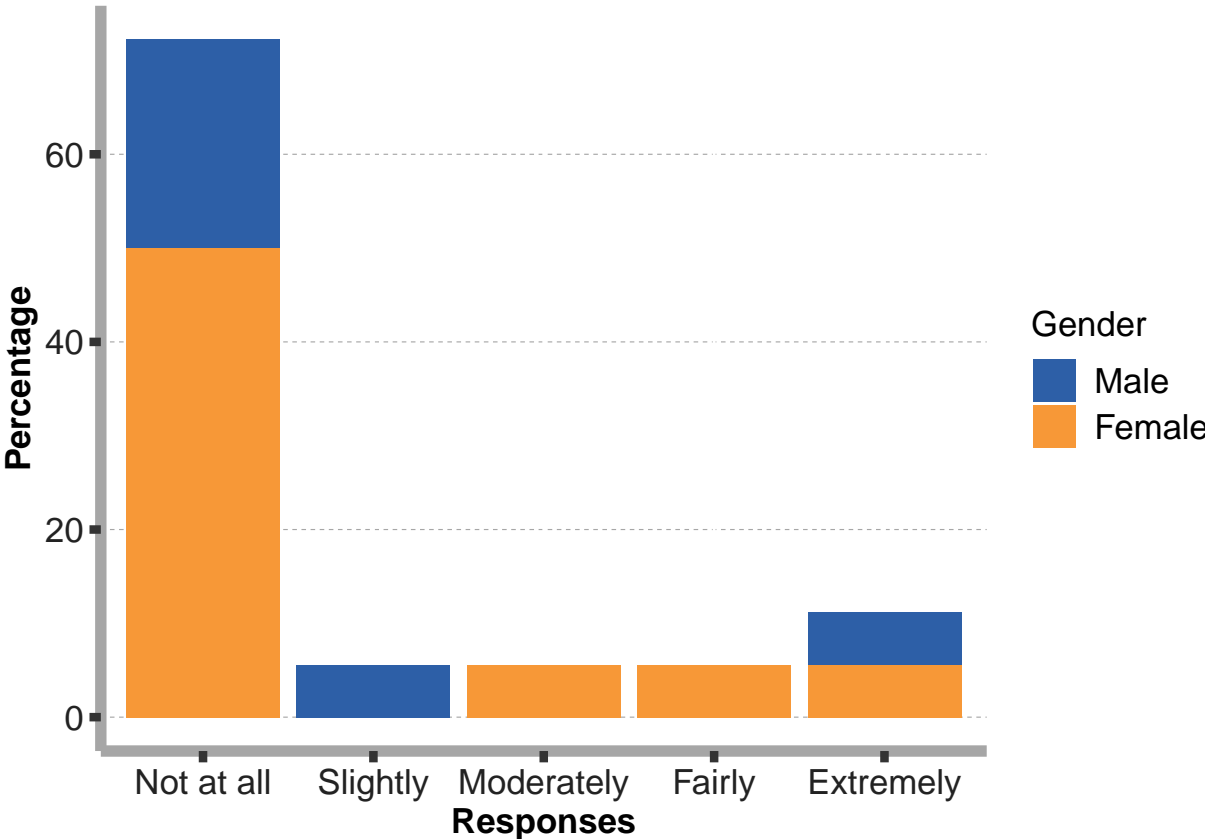
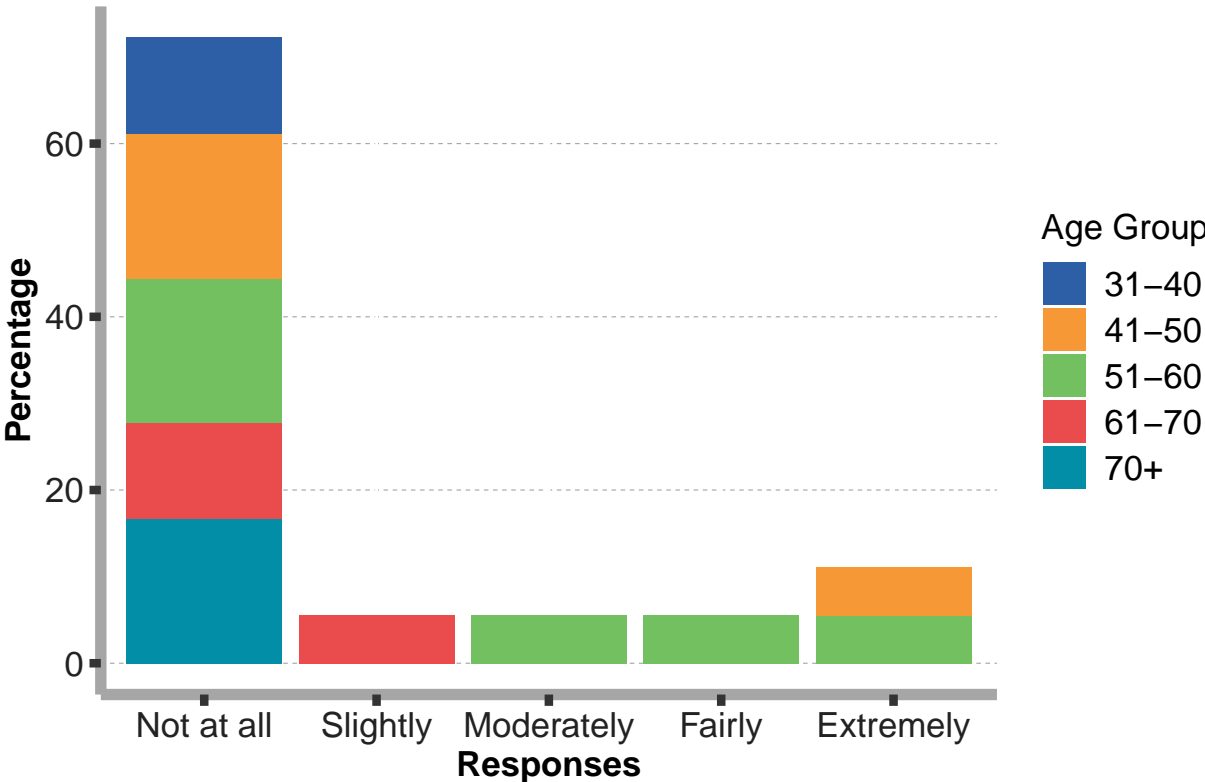
### Q4. I felt guilty



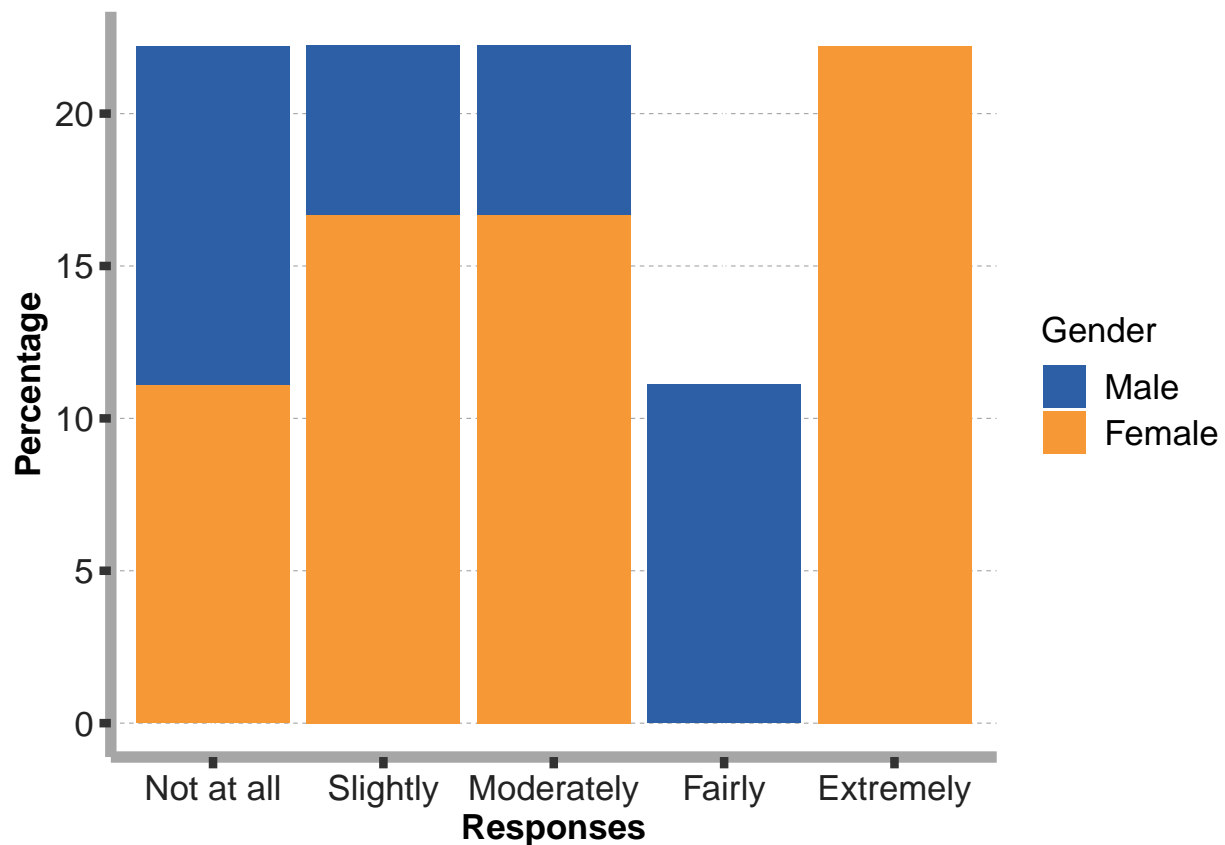
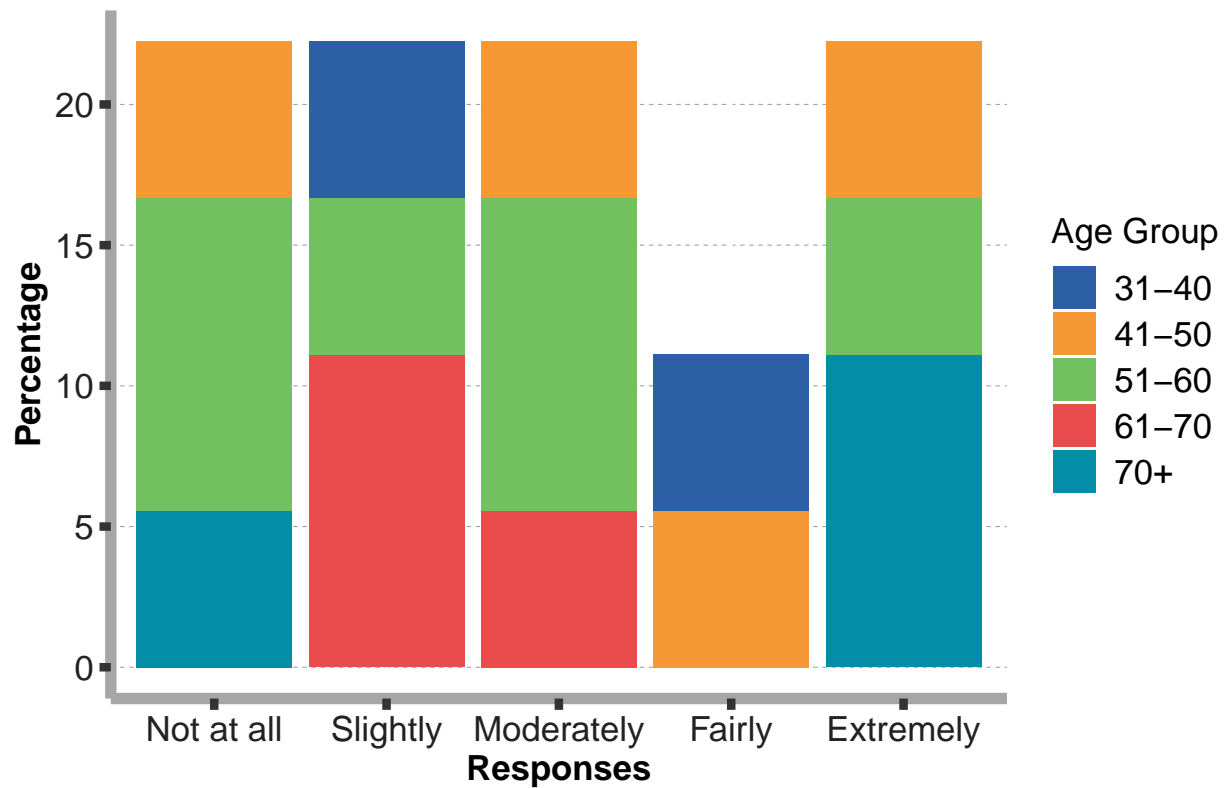
### Q5. It felt like a victory



**Q6. I found it a waste of time**

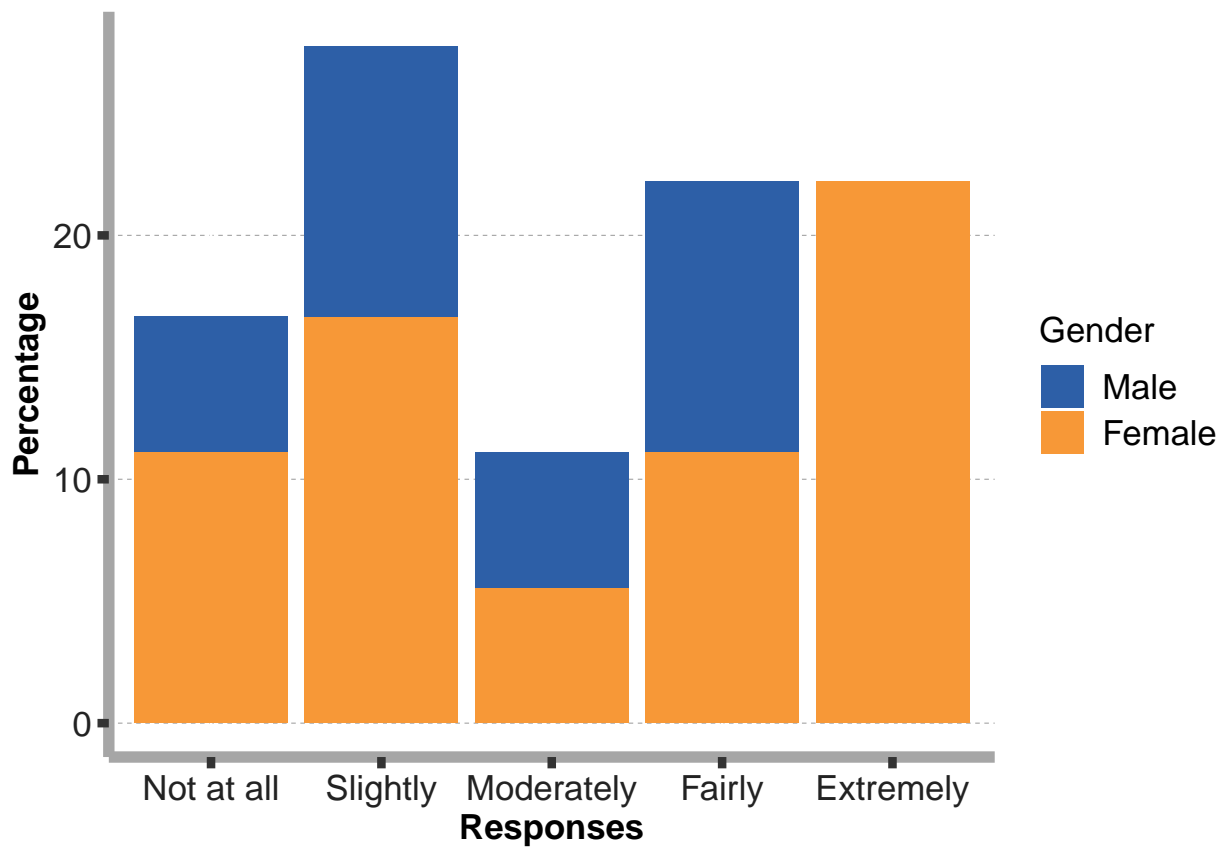
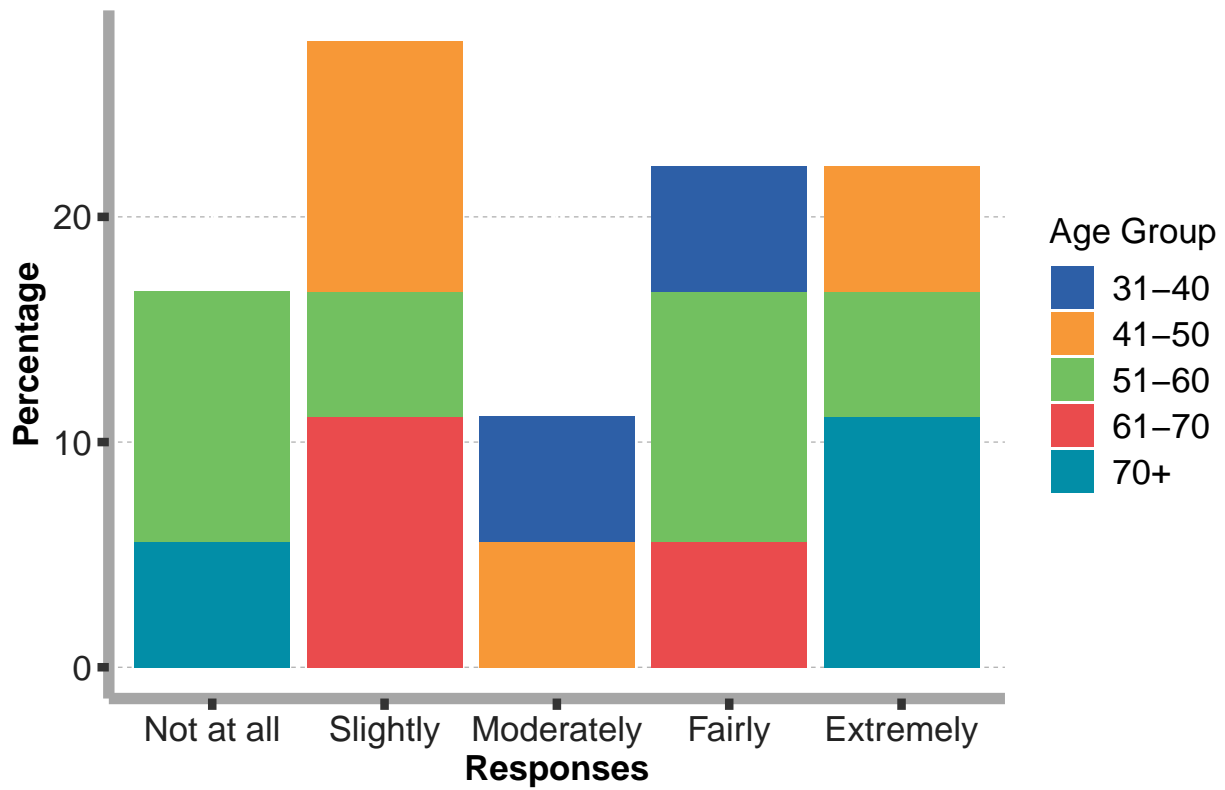


### Q7. I felt energised

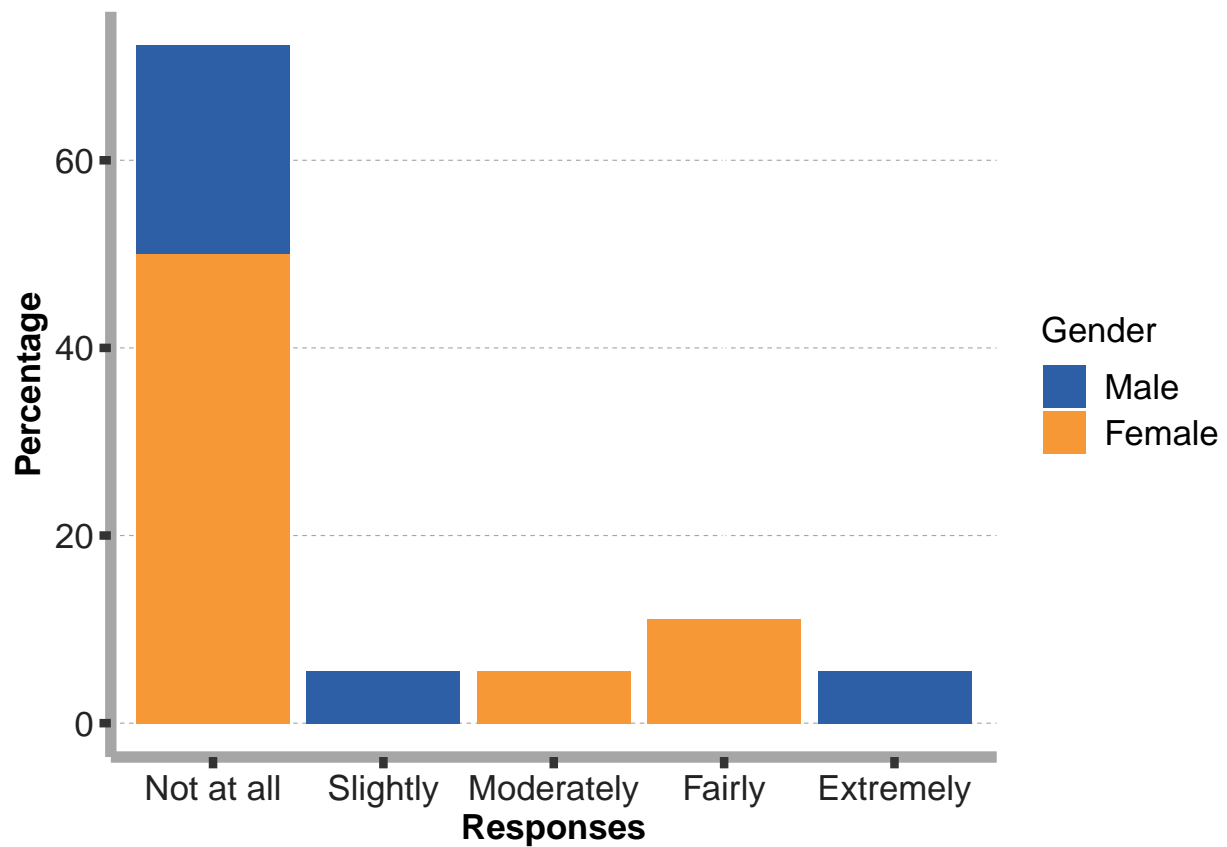
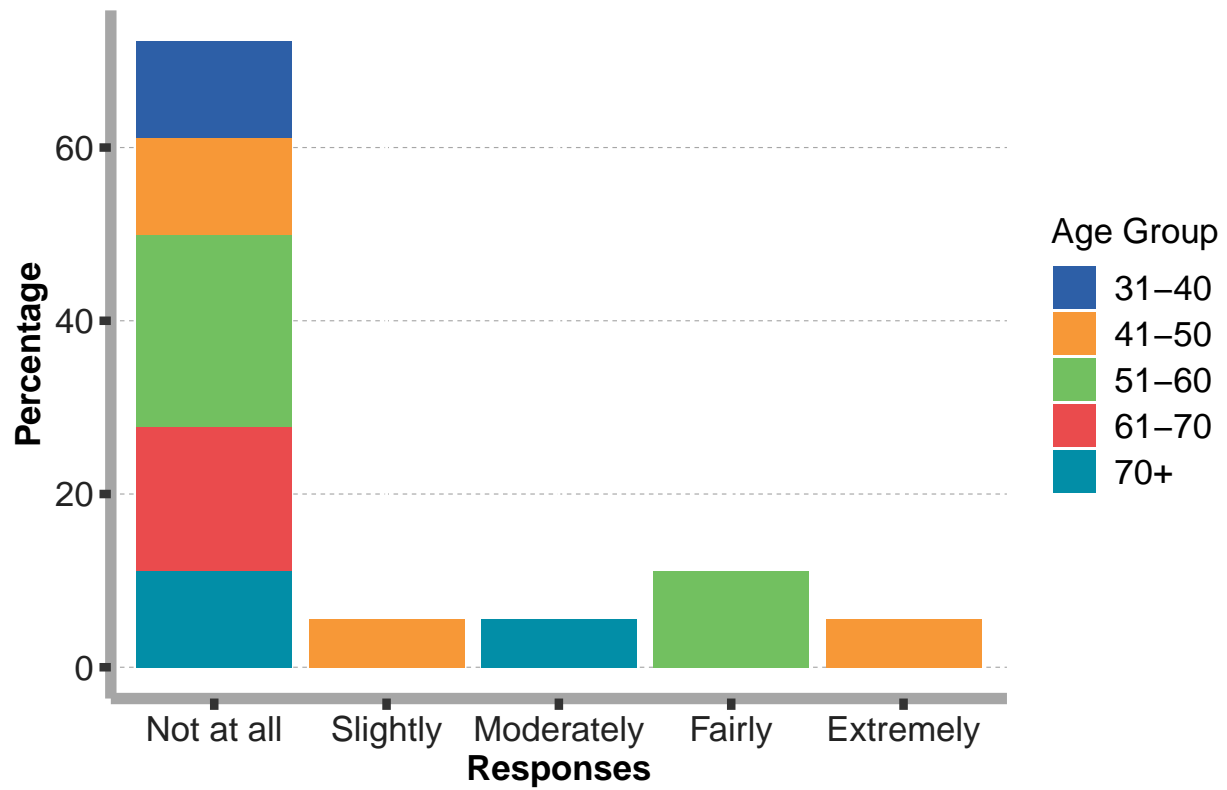




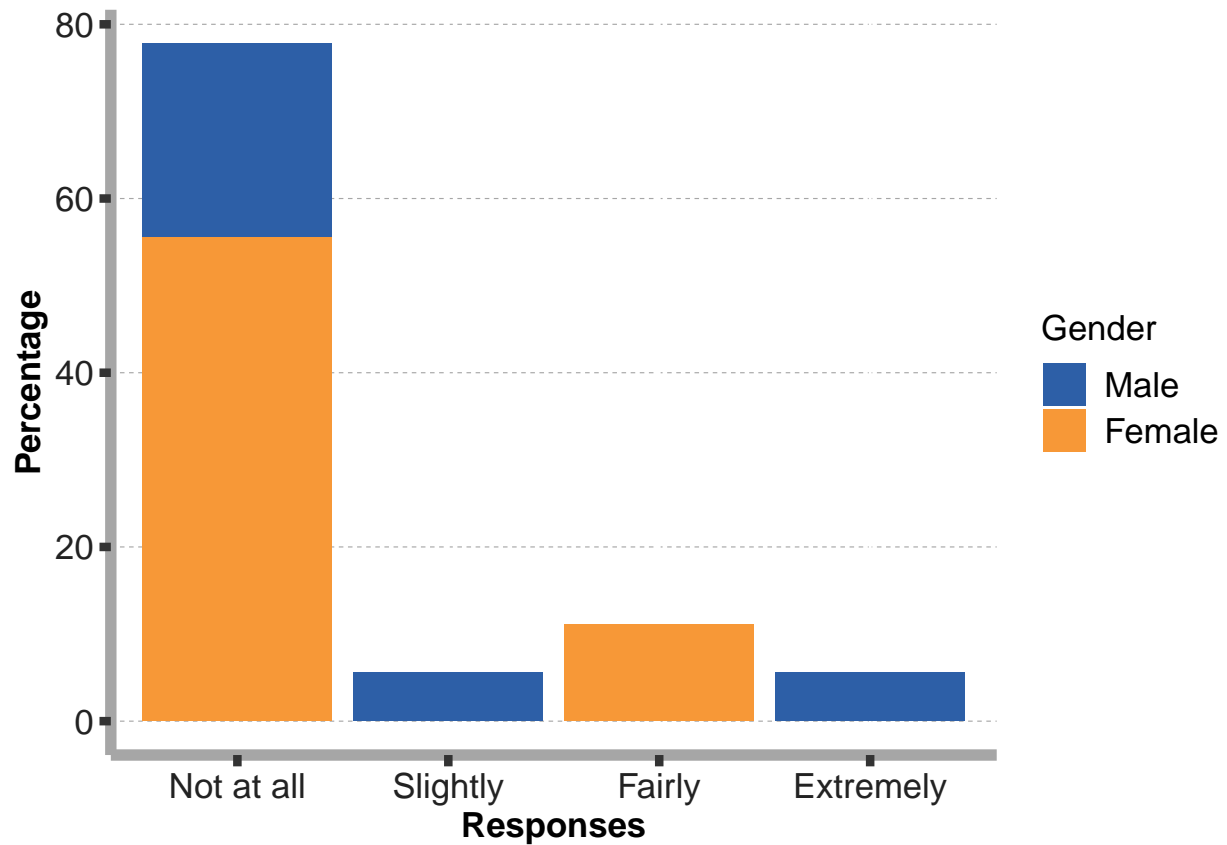
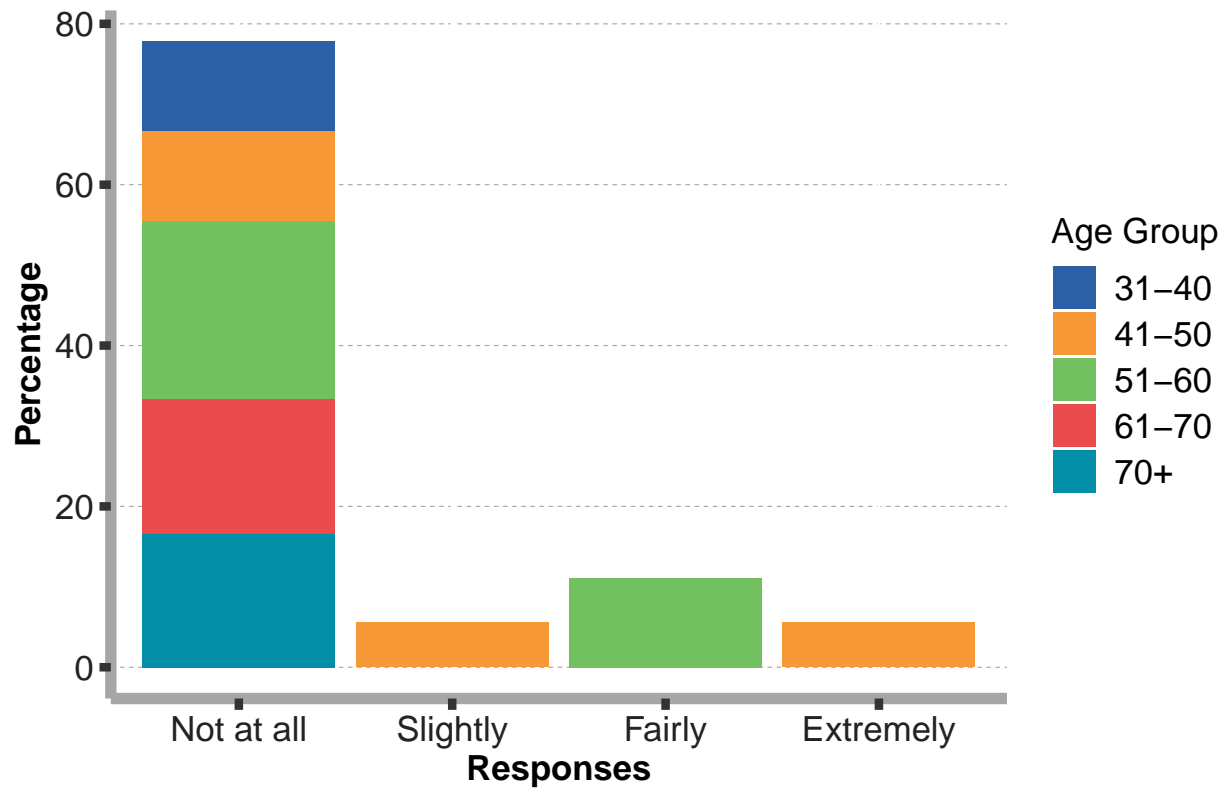
### Q8. I felt satisfied



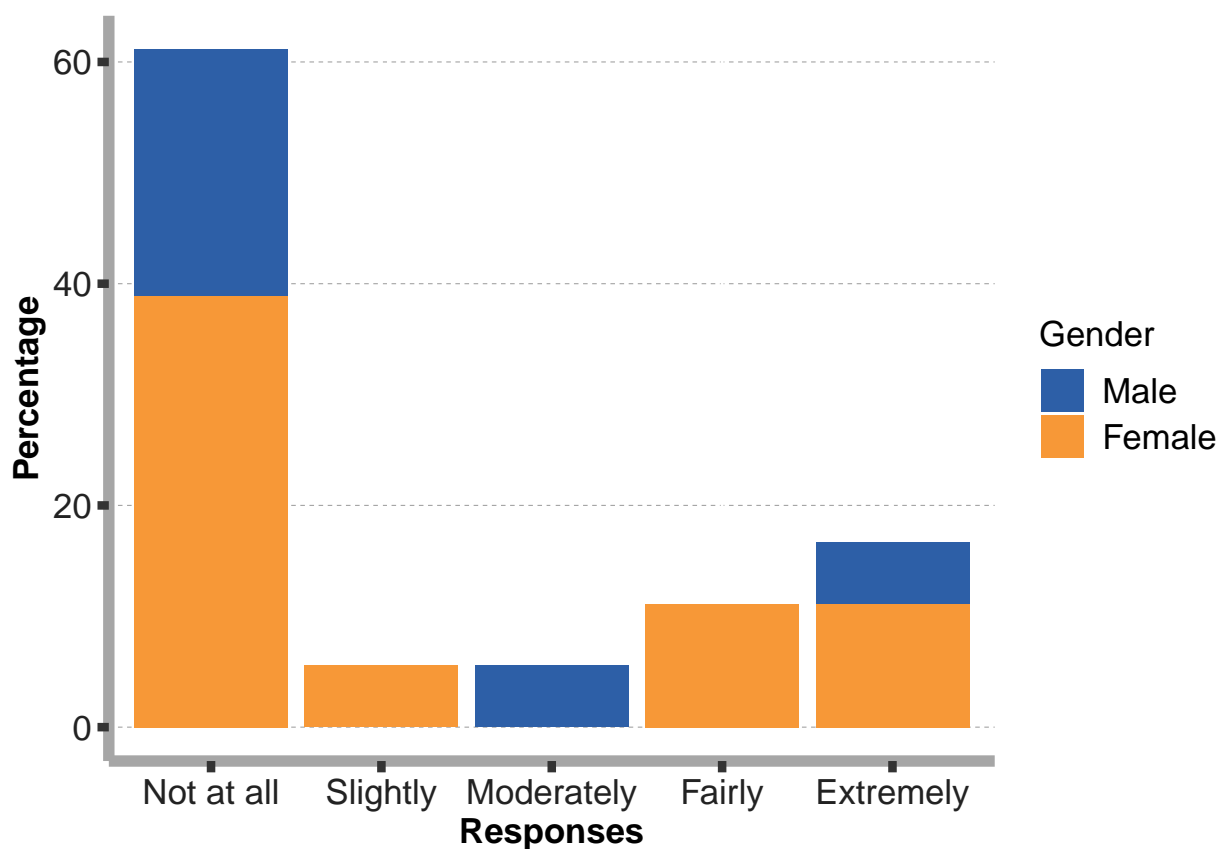
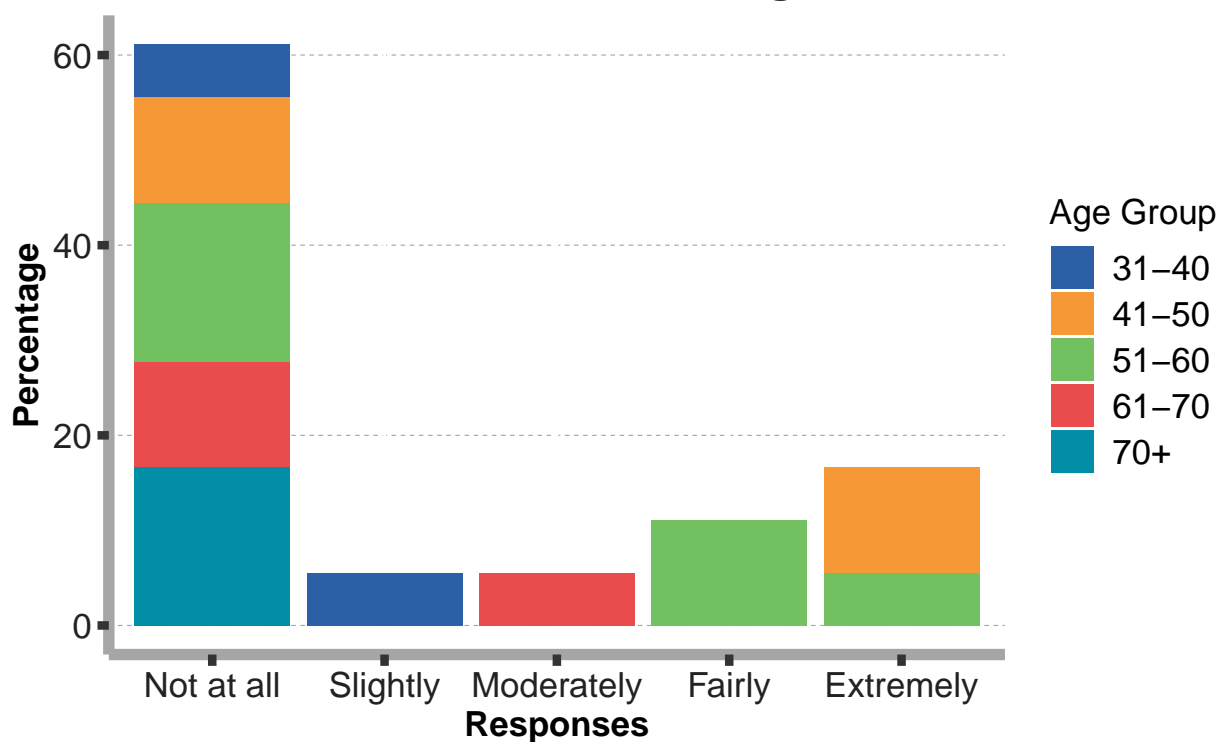
### Q9. I felt disoriented



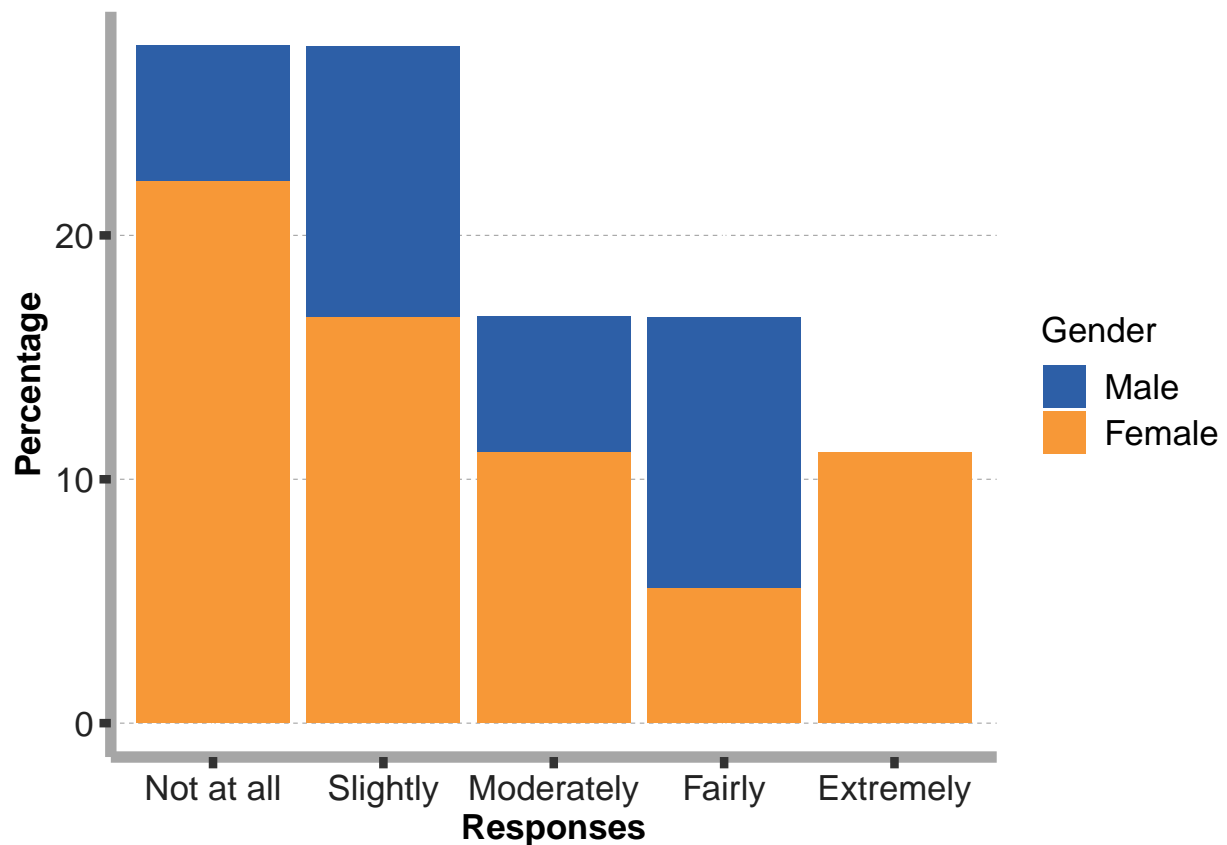
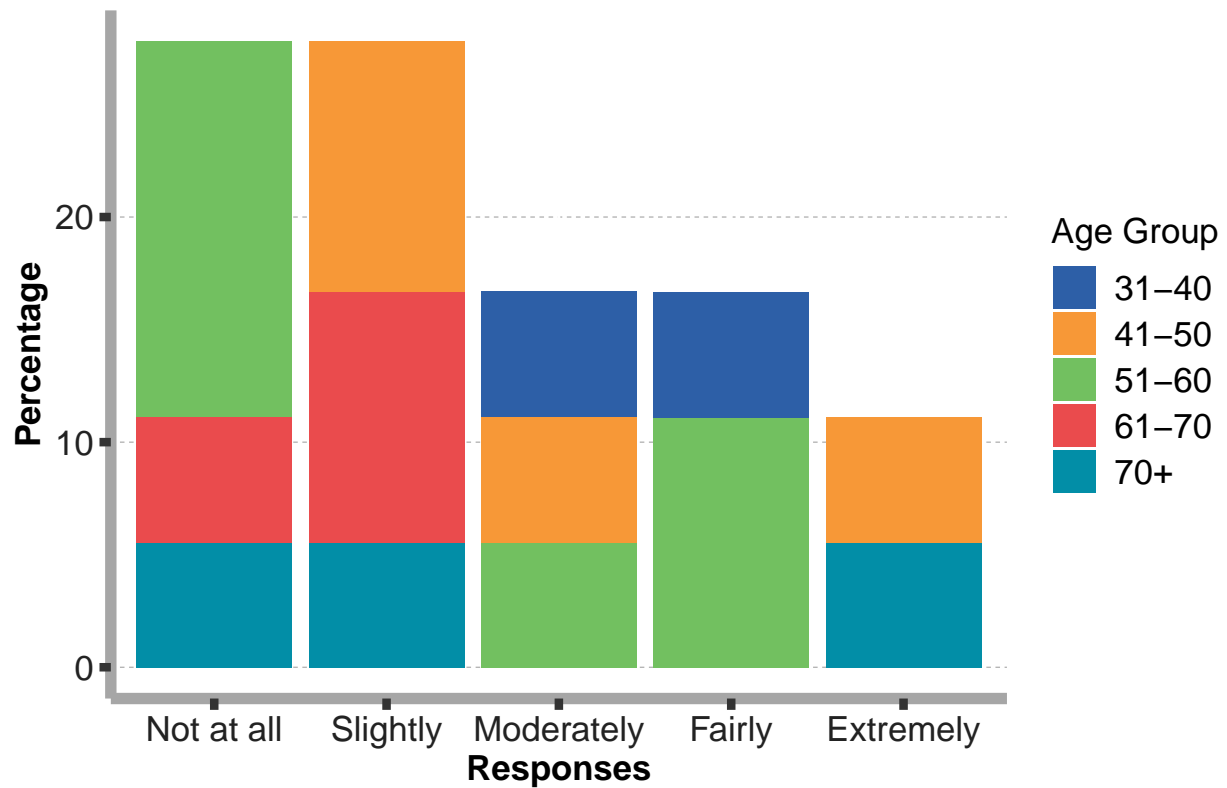
### Q10. I felt exhausted



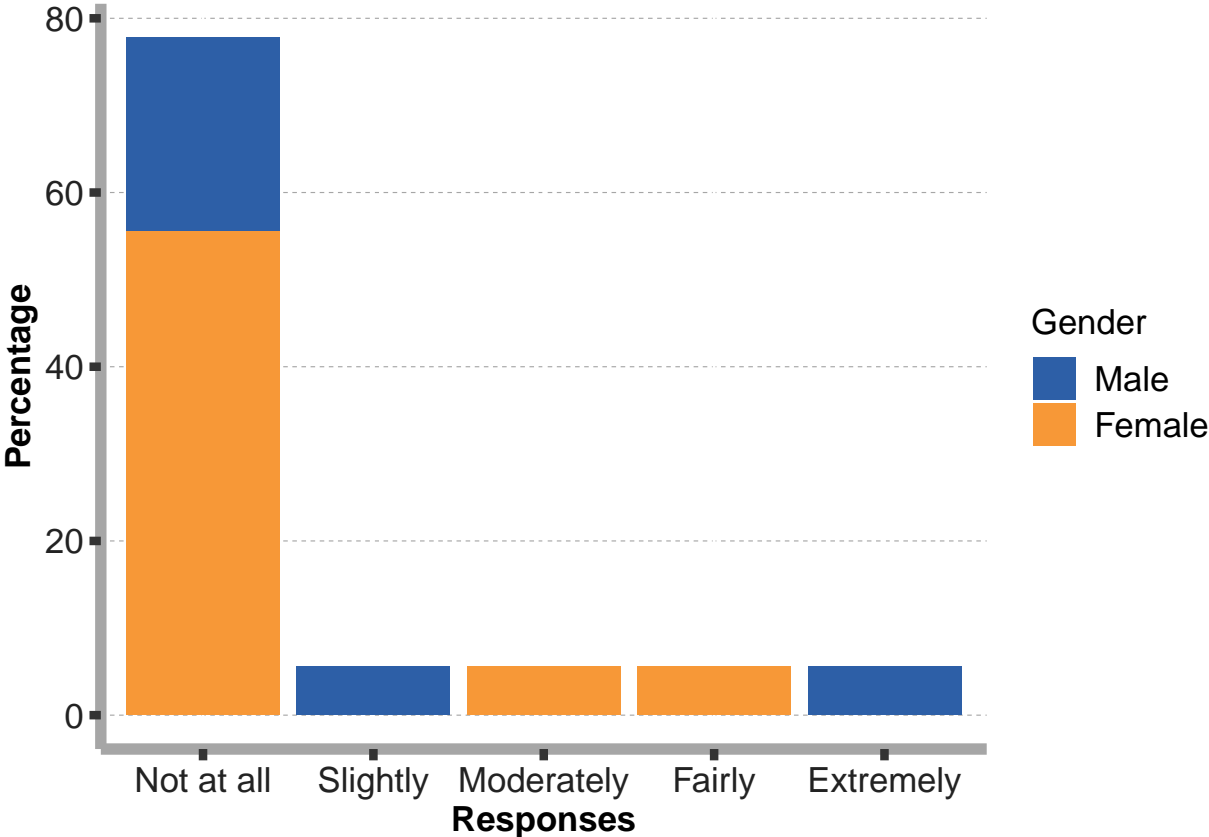
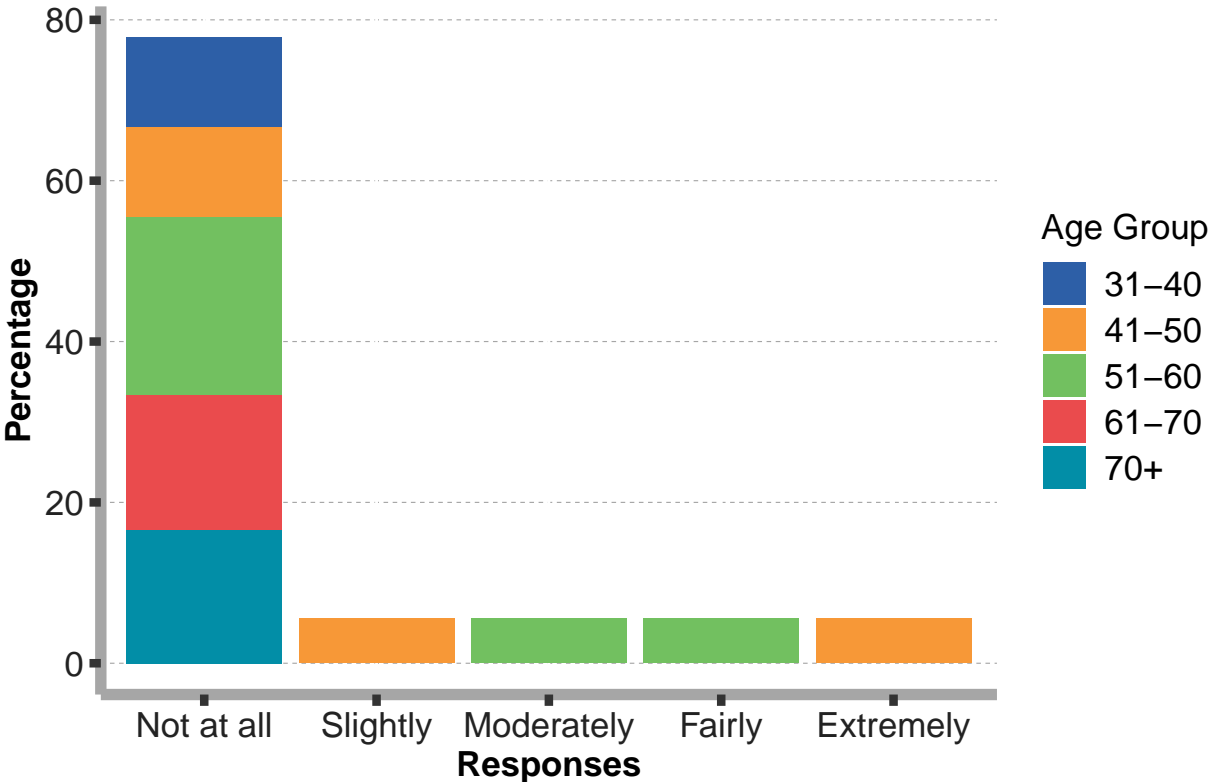
### Q11. I felt that I could have done more useful things



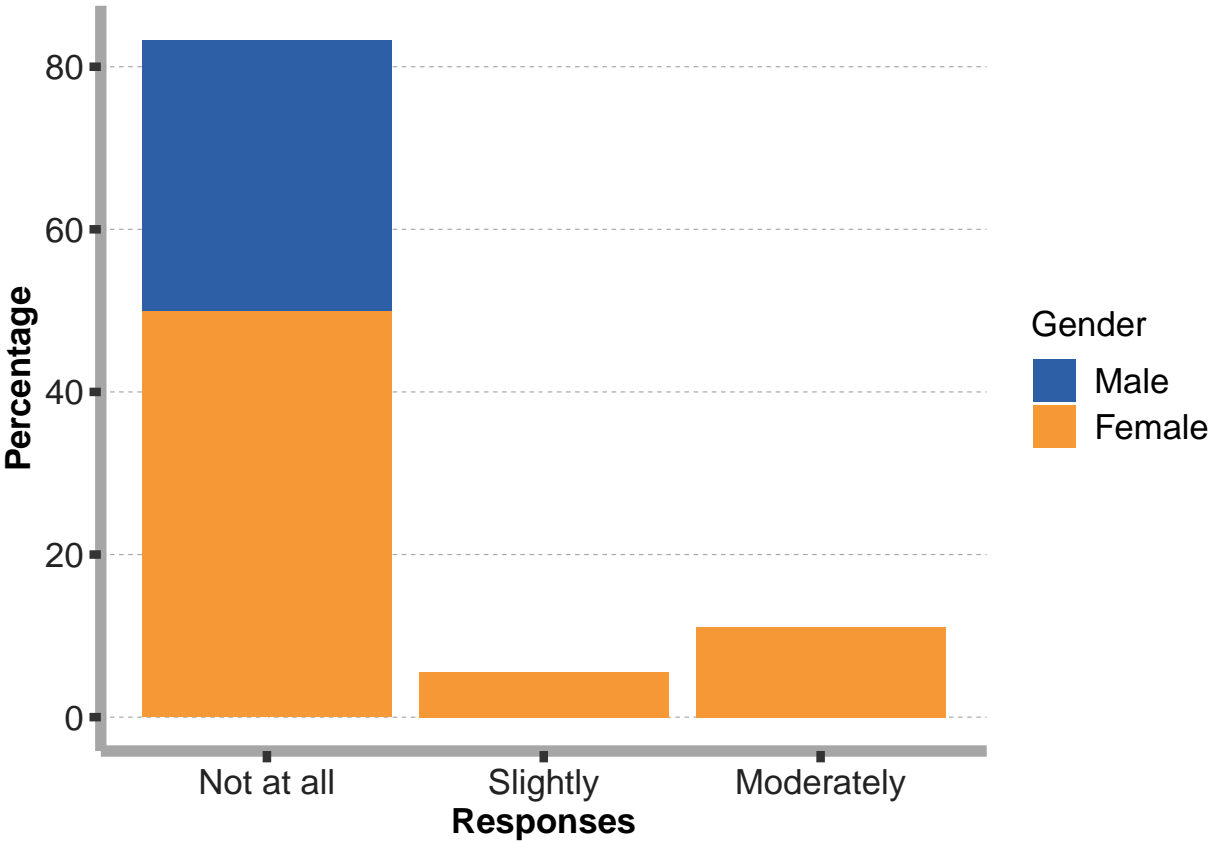
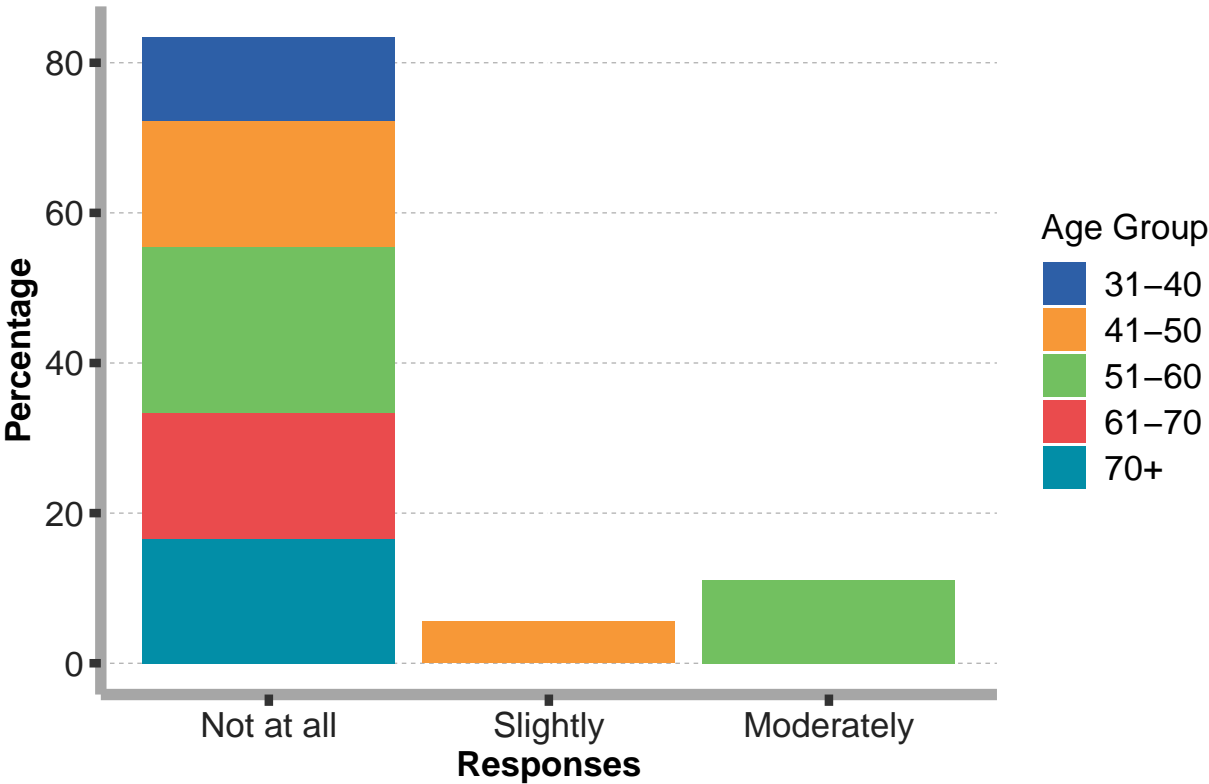
## Q12. I felt powerful



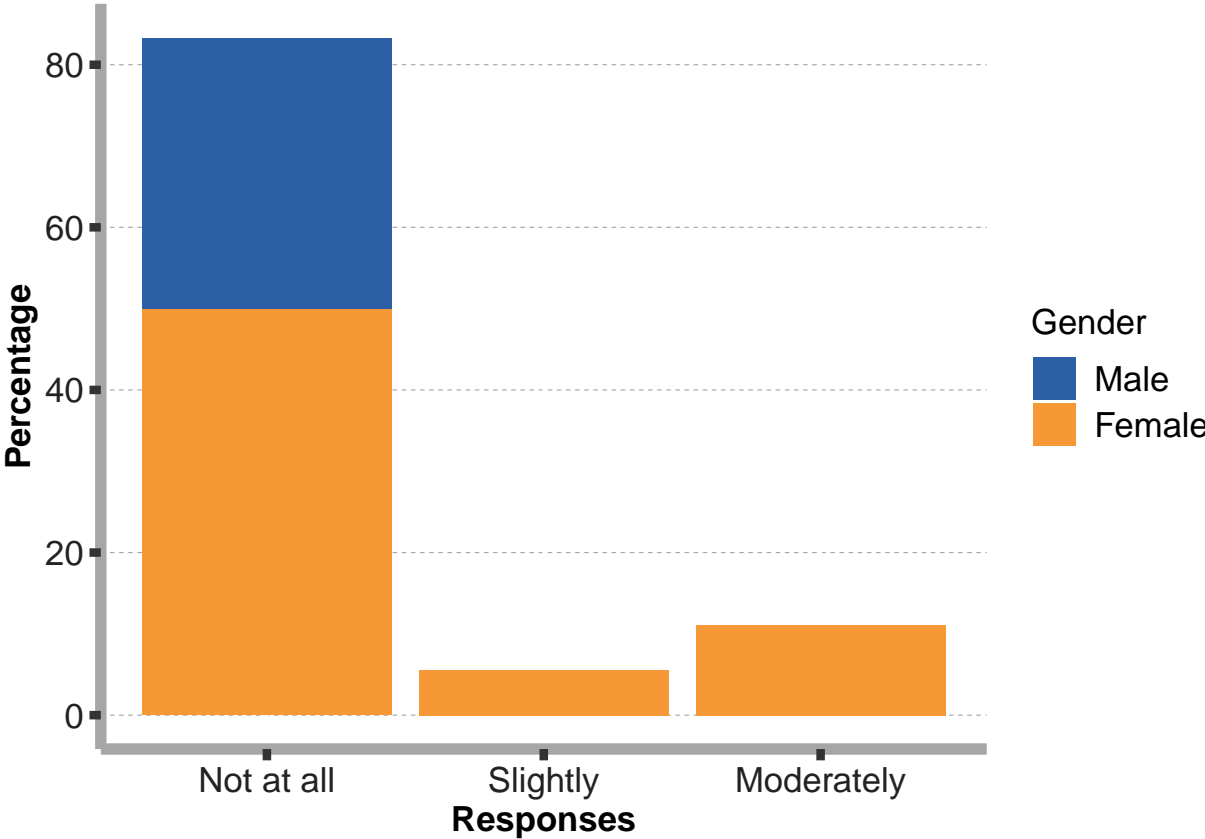
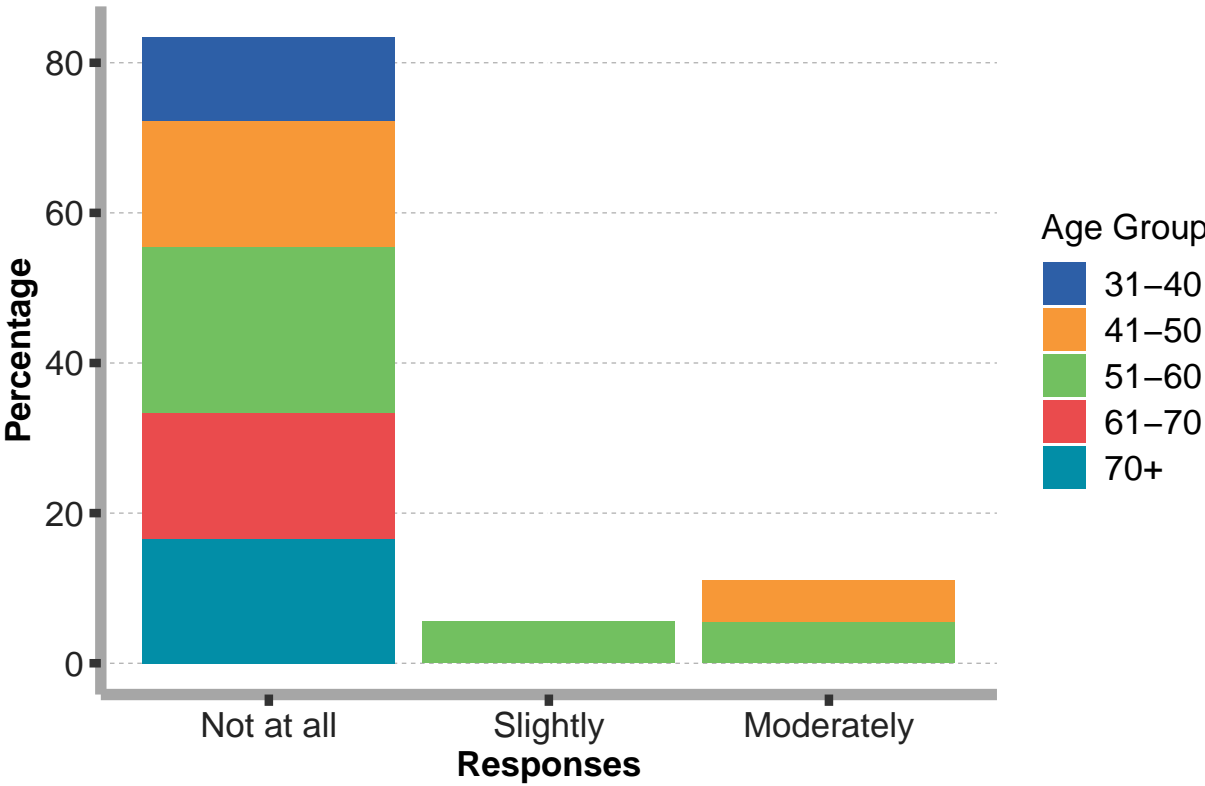
**Q13. I felt weary**



Q14. I felt regret

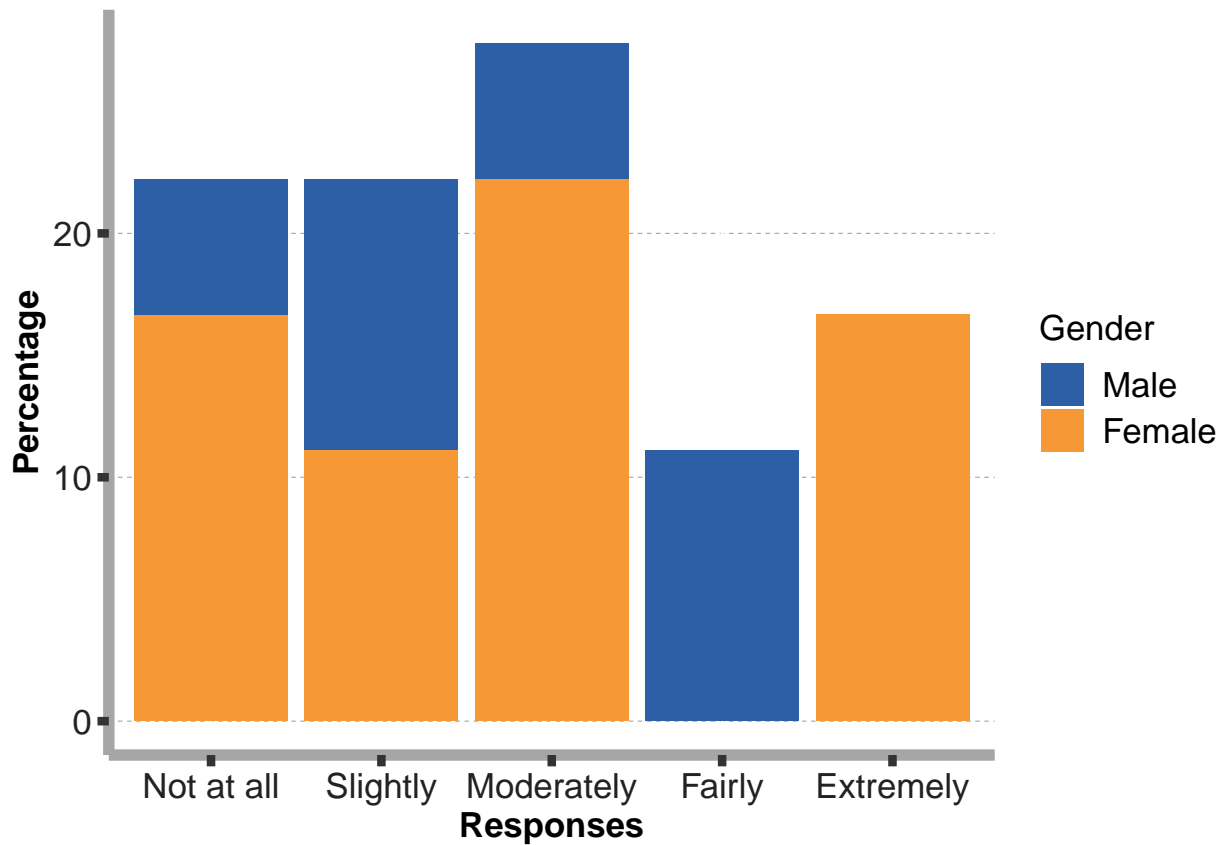
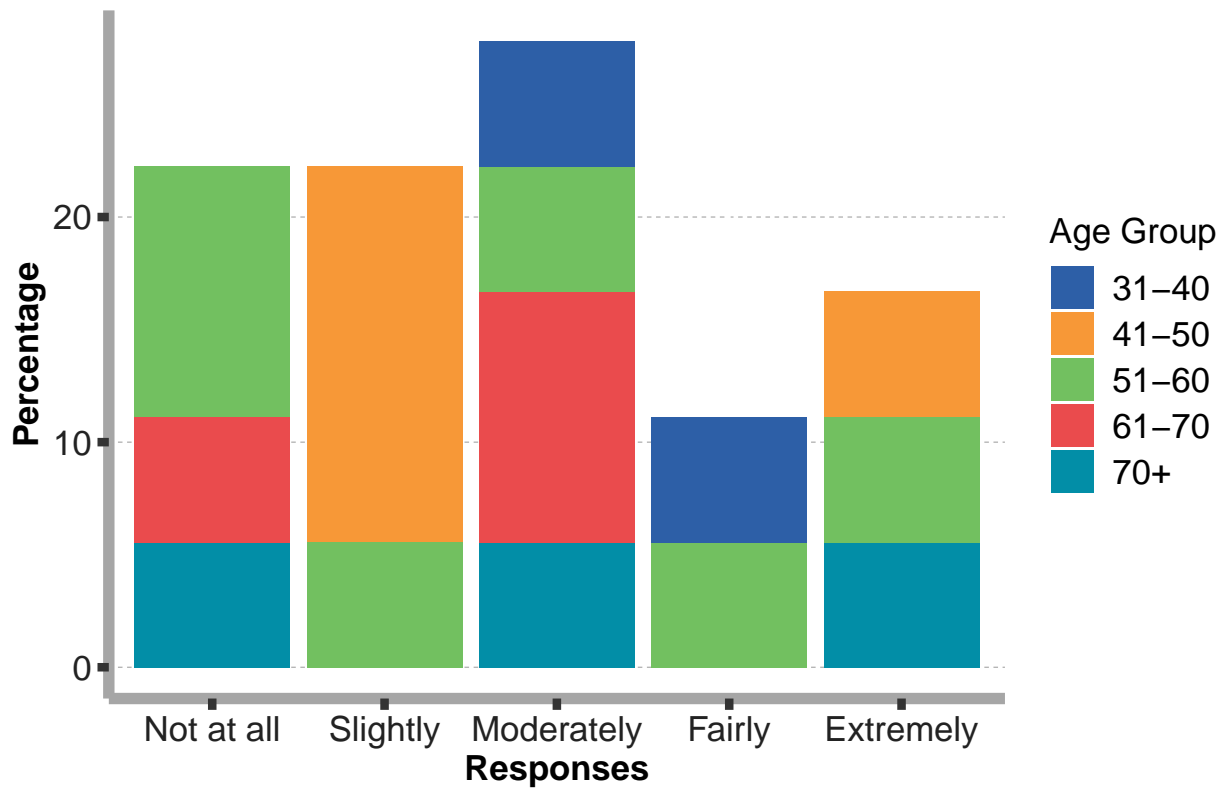


**Q15. I felt ashamed**





### Q16. I felt proud



**Q17. I had a sense that I had  
returned from a journey**

