



Introduction

Haleon and SAM PPL Insights have been exploring consumer liking and, more specifically, the theory that the standard bipolar Liking scale forces consumers into making a binary choice, and therefore results in a loss of some of the more nuanced understanding around liking and disliking.

Hypothesis

The inclusion of separate liking intensity and disliking intensity scales leads to greater understanding than a standard bipolar liking scale alone.

Authors

Russell Mackie
Director Haleon
Elvin Chun
Principal Scientist Haleon
Giles Catcheside
Principal Scientist Haleon
Yvonne Taylor
Managing Director SAM PPL Insights
Helen Goode
Senior Associate Director SAM PPL Insights

Method

- Separate liking intensity and disliking intensity scales were included on two consumer tests conducted by SAM-PPL Insights in the UK during late 2022 and early 2023:
 - OTC pain relief creams
 - 16 products, 235 consumers, sequential monadic test over 4 day
 - Hot medicated drinks
 - 10 products, 237 consumers, sequential monadic test over 5 days
- Additionally, on the pain relief project, the standard bipolar overall liking scale was also included. All scales were 9 point (1 to 9).

Standard Overall Liking Bipolar Scale	Q6. Now thinking about both LIKING AND DISLIKING, how much do you LIKE OR DISLIKE this product overall?
	Dislike extremely 1 2 3 4 5 6 7 8 Like extremely 9
Liking Intensity Scale	Q5. And how much do you LIKE this product overall?
	There is nothing I like about this product 1 2 3 4 5 6 7 8 I like everything about this product 9
Disliking Intensity Scale	Q4. Taking into account all aspects of this product, how much do you DISLIKE this product overall?
	There is nothing I dislike about this product 1 2 3 4 5 6 7 8 I dislike everything about this product 9

- The results from the separate intensity scales were compared with those of the standard bipolar scale.
- For medicated hot drinks, Haleon also conducted sensory testing which enabled us to run driver analysis and look at if the key drivers varied between the standard binary scale and the two separate intensity scales.

Results: The Rule of 10*

- If liking and disliking are bipolar, we would expect an individual's responses to both scales to add to 10*.

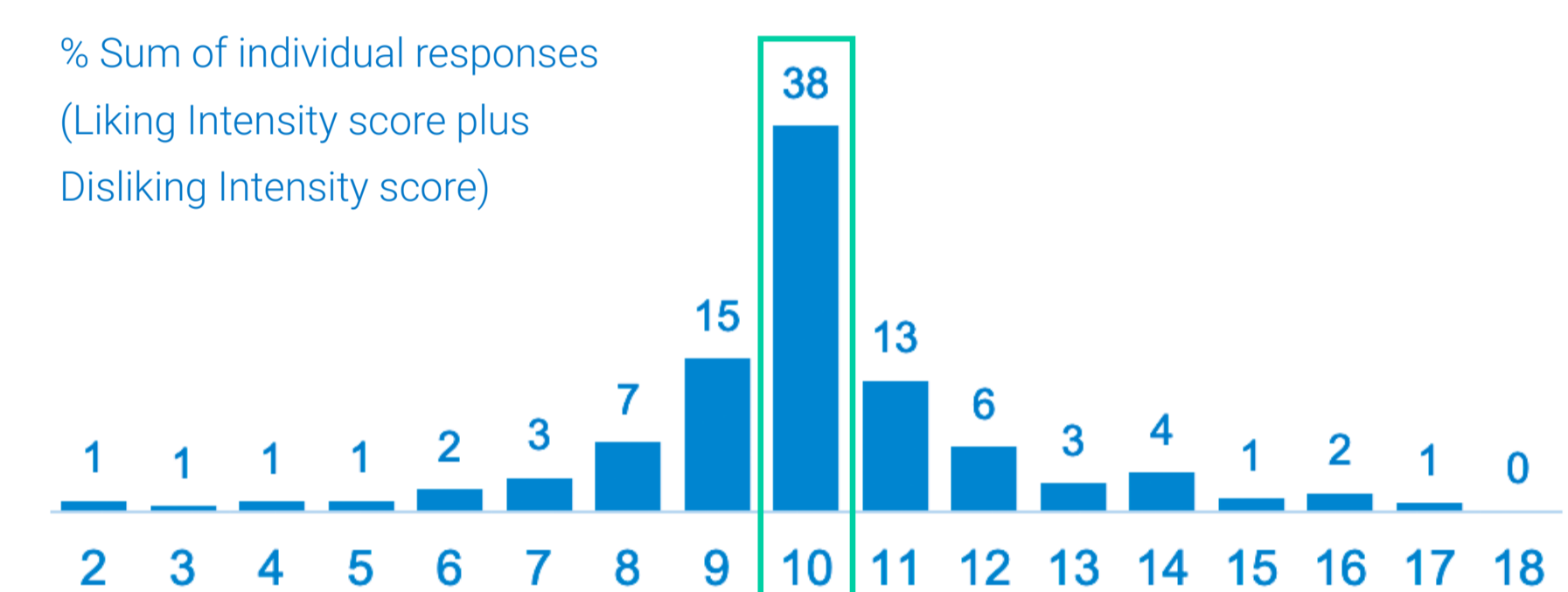
Table 1: Rule of Ten Examples

liking scale score	disliking scale score	Addition of scores	Rule of 10 rule confirmed
9	1	10	✓
5	5	10	✓
7	4	11	✗
8	4	12	✗

*Based on a 9-point scale.

On medicated hot drinks only 38% of individuals gave answers which added to 10. This was 41% on the pain relief project.

Chart 1: Rule of Ten on Medicated Hot Drinks



Results: Correlations

- Our results showed a strong correlation (+0.83) between individual responses to the standard liking scale and the separate liking scale. This is as we would expect.
- However, whilst we expected a perfect negative (inverse) correlation between the separate liking intensity and disliking intensity scale responses, the actual responses were much less correlated than that.

Table 2: Correlations achieved across the two studies

	OTC pain relief	Medicated hot drinks
Standard Liking x Liking Intensity	0.83	n/a
Liking Intensity x Disliking Intensity	-0.32	0.55

- The lower correlations of -0.32 and -0.55 suggest that liking and disliking are not bipolar in nature, but rather they are bivariate.

Results: Driver analysis

- On medicated hot drinks, the drivers identified from the bipolar overall liking scale and the liking intensity scale were identical as shown in table 3.
- However, the drivers identified by running the analysis on the disliking intensity scale were wider and additionally included bitter taste, sweet taste and candy aroma.

Table 3: Key Drivers Identified*

Overall Liking	Liking Intensity	Disliking Intensity
Color saturation	Color saturation	Color saturation
Transparency	Transparency	Transparency
Mouthwatering afterfeel	Mouthwatering afterfeel	Mouthwatering afterfeel
Mouthwatering	Mouthwatering	Mouthwatering
Sour taste	Sour taste	Sour taste
		Bitter taste
		Sweet taste
		Candy/cooked fruit aroma

- These additional drivers of disliking would not have been identified if only the standard bipolar overall liking scale had been included.

Results: More Verbatim Responses

The inclusion of separate liking intensity and disliking intensity scales can generate more verbatim responses.

Table 4: % stating a dislike when separate disliking intensity scale versus standard liking bipolar scale

% verbatim disliking (standard bipolar liking scale)	63%
% verbatim disliking (separate liking intensity scale)	70%

- 7% more dislikes were recorded.

Conclusion

- A liking intensity scale could replace the standard Overall liking bipolar scale without any loss of understanding or insight. Consumers use the two scales in a similar way, and they lead to similar conclusions.
- Liking intensity and disliking intensity are not bipolar but bivariate, and consumers respond to the scales in different ways. This was also suggested by Kwak, Ahn, Lee, Kreger & Lee (2013).
- The inclusion of a disliking intensity scale as well as a liking intensity can lead to greater depth of understanding and insight, as evidenced by a wider set of drivers and more verbatim responses.
- These conclusions should be further explored by replicating the analysis on more product tests, and in different categories.

Acknowledgements

- The studies for this work were jointly funded by Haleon and SAM PPL Insights.
- Kwak, H. S., Ahn, B. H., Lee, Y., Kreger, J., & Lee, S. Y. (2013b). Comparison of bipolar and bivariate measurements of liking and disliking percepts in novel products. Food Quality and Preference, 30, 328–335