How Colour Influences Taste Perception in Adult Picky Eaters

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Abstract

Picky eating is characterized by a limited intake and avoidance of foods which can increase health risks, including nutritional deficiencies and health related disease. It is therefore important to understand the factors that act to 'push and pull' such picky eating behaviour. Previous research has demonstrated that the smell and texture of food can affect taste perception in picky eaters, but little is known about other multisensory attributes. In the study here, we aimed to examine whether colour influences perception of food in picky eaters. Participants (N=47) were categorized as Picky or Non-Picky Eaters on the basis of their responses to a standardized measure of Food Neophobia (FNS). They then completed a taste sensitivity test (PROP) followed by a food tasting task, where they sampled the same snack served in three different coloured (red, blue, white) bowls. Results revealed that both the perceived saltiness and desirability of the snack were influenced by colour in the Picky but not Non-Picky Eaters. Specifically, the snack was rated as higher in saltiness in the red and blue versus white bowl condition and least desirable when served in the red bowl. These findings are discussed with reference to more specific measures of categorising picky eating and provide preliminary evidence that the perception of food in Picky Eaters depends on the serving receptacle colour and offer potentially simple interventions for those with a restricted food repertoire.

Keywords

Picky Eaters, Food Neophobia, Multisensory, Colour Perception, Eating Behaviour

Introduction

The sensory characteristics of food are a key feature in their preference and avoidance (Thomas et al., 2017). Food restriction in relation to sensory characteristics generally manifests itself behaviourally as 'picky eating' which is an umbrella term that refers to a range of problematic complex behavioural traits (Jacobi et al, 2008). Despite inconsistencies in definition, behaviour commonalities include a limited diet, specific food preparation, strong dislikes and difficulty accepting new foods (Chao & Chang, 2017). Zickgraf & colleagues (2016) discovered that across a lifespan, a picky eater will generally consume fewer than 20 different food items. Such restricted diets can lead to nutritional deficiencies in iron, zinc, and fibre (Taylor & Emmett, 2019; Taylor et al, 2016; Volger et al, 2017; Xue et al, 2015; Walker & Black, 2004), as well as health problems like heart disease, poor bone health (osteoporosis) and dental issues (Mayo Clinic, 2021; American Heart Association, 2020). Additionally, there is also a social cost in that as eating is a social activity, normally enjoyable moments between family members can easily turn into stressful, anxious, and conflict-causing situations when picky eaters (PE) feel ashamed or pressured to eat food (ABC, 2022; Mikstas, 2020; Trofholz et al, 2017; Barnhart et al, 2021).

From a different domain of research, molecular gastronomy, a branch of food science, focuses on the manipulation of multisensory factors through physical and chemical processes during cooking and eating (Caporaso & Formisano, 2016). Modifications to colour, sound and smell can enhance or diminish taste qualities, changing an individual's perception and overall preference for a dish (This, 2019). Techniques like these could be adapted to encourage PE into enjoying foods they would usually avoid. For instance, one study found that individuals enjoyed eating oysters to a greater extent whilst listening to congruent (ocean) versus incongruent (farm)

sounds (Spence & Piquras-Fiszman, 2014). Research into factors that affect dining experience (Spence & Piquras-Fiszman, 2014) have led to the realisation that sensory factors influence the extent to which we will like food, even before it has been tasted (Van Doorn et al, 2017), including smell (Monnery-Patris et al, 2015), texture (Szczesniak, 1991), colour and cutlery (Harrar & Spence, 2013).

In terms of picky eaters, research by Nederkoorn and colleagues (2019) showed that individuals with high tactile acuity also had an increased dislike for the mouth feel of certain food textures, causing them to be choosier with food. Such work demonstrate that individuals more inclined toward picky eating are able to detect very small changes in the sensory characteristics of food, leading them to reject food. It further demonstrates that to encourage food acceptance, attention to small sensory changes in food needs to be recognised, in order increase the variety of food consumed (Coulthard & Blissett, 2009). However, research in this field has been mainly focused on smell and texture. The factor of colour has been widely unstudied in its effects on taste perception in PE, although previous research has recognised it as the most important product-intrinsic cue (Spence, 2015; Spence et al, 2015). Multiple studies have documented that simple changes of colour saturation can impact the expectations and overall experience of food. For instance, Harrar, Piqueras-Fiszman & Spence (2011) presented participants with different coloured bowls in a random order, filled with sweet or salty popcorn and asked participants to rate the sweetness, and saltiness. Salty popcorn was perceived significantly sweeter when served in a red bowl, while sweet popcorn was perceived significantly saltier when served in a blue bowl. This effect is believed to be due to specific colour flavour associations where certain

colours such as red and blue have been shown to reliably associate with the basic tastes of sweet and salty respectively (Woods & Spence, 2016; Spence et al, 2015).

Research in the area of picky eating has been largely focused on child aged populations (Cardona, 2017) which has led to a gap in knowledge with regards to individuals who are 18 years or older. Considering that around 18.1% of the adult population are classified as PE (Ellis et al, 2018), alongside the considerable health consequence of a limited diet, little research is available on the prevalence and effects of picky eating in older ages (Jacobi et al, 2008). As adults are at equal risk of developing health issues, studying the impact of picky eating on an adult population, and identifying new ways to increase food variety would be beneficial from a clinical and health perspective. The present study will provide further insight into the multisensory effects of colour on eating habits while broadening our knowledge of adult PE. This study also has the potential to inform possible treatment strategies that can be used to help increase the variety of foods that PE consume (Cardona, 2017).

In the present experiment, young adults completed the Food Choice Questionnaire (FCQ) and the Food Neophobia Scale that provide a measure of their picky eating tendencies. They then consumed three snacks (provided) from three different coloured bowls and completed taste ratings for saltiness, flavour intensity and desirability. The rationale for the use of the three coloured bowls was based on previous research which showed effective results of these colours on changing individuals' taste perception (Harrar et al, 2011; Tijssen et al, 2017). To the researchers' knowledge, there are no published studies that explicitly examine the effect of colour on taste perception in adult PE and non-picky eaters. However, on the basis that PEs are

known to be generally more sensitive to food cues (including smell, taste, touch, mouthfeel, Coulthard & Blisset, 2009; Nederkoorn et al., 2018) it would appear reasonable to assume that the known effects of colour on food perception (Harrar et al., 2011) would be more intense for those individuals. We therefore first predict that PE will have increased taste sensitivity compared to non-picky eaters (Kauer et al, 2015). Secondly, we tentatively predict that colour will have an increased influence on the taste perception of PE compared to non-picky eaters. Specifically, we expect PE to rate the saltiness of the snack eaten from the blue bowl as most intense and the snack from the red bowl as most desirable. Finally, we predict differences in food preferences in the FCQ, where on the basis of similar previous research (Fox et al., 2018; Jaeger et al., 2017), familiarity is expected to be higher (more important) for PEs compared to non-picky eaters.

Method

Participants

Participants (n=47; M_{age} = 19.83, SD_{age} = 2.35; range 18-33; 15 males, 31 females and 1 non-binary) were University students recruited through an online advert on the Psychology Department Participant Pool and through the social media contacts of the lead author. Sample size was estimated by a combination of power analysis calculations and previous similar work in this area (Harrar et al., 2011). Power analysis (G*Power 3.1, Faul et al., 2007) for a repeated measures design (within/between interaction; small/moderate effect size [f = 0.2], 80% power [1-beta = 0.8], alpha = 0.05) recommends N=42. We aimed to recruit fifty participants but due to recruitment difficulties were unable to obtain a total sample larger than 47 participants. Participants with food allergies, those with a current upper respiratory infection and those under the age of 18 were not allowed to participate in the study. The study was advertised as 'Food Glorious Food' and the protocol was given ethical approval from the Psychology Department Ethics committee (2021-003); all participants gave informed consent.

Design

The study used a 2 x 3 mixed design to explore the relations between Group (i.e. eating habits) and colour on subjective taste, where Group was a between-subjects factor [Picky PE/Non-Picky Eater N-PE] and Colour was a within-subjects factor (red, blue, and white). The dependent variable was taste ratings and included 3 measures: desirability, saltiness, and flavour intensity. Taste sensitivity was also measured separately. Order effects (colour presentation) were counteracted by using a Latin square.

Materials

Verbal Allergy Probe

Prior to starting the study, the experimenter read a verbal allergy probe to check that participants had no food allergies. The verbal probe read "Are you allergic to any of the following items? Peanuts, Tree nuts, Sesame, Milk, Wheat/Gluten, Soya, Celery, Mustard, Barley. Are you allergic to any items that have not been named?". Individuals with any allergies were not allowed to participate in the study.

Food Neophobia Scale (FNS)

To measure participants level of food pickiness, the Food Neophobia Scale (Pliner & Hobden, 1992) was used, as it is known to precisely measure unwillingness to try unfamiliar foods. The FNS is a 10-item test that measures one's agreement/disagreement to statements regarding new foods or unfamiliar eating situations. One statement for example is "I am very particular about the foods I eat". Responses were measured using a 7-point bipolar scale with 1 indicating strongly disagree and 7 indicating strongly agree. Scores are calculated by summing the individual items bipolar scores together. However, items 1, 4, 6, 9 and 10 had to be reverse scored as these items corresponded with neophilia (the liking of food) rather than neophobia. Participants scores can range from 10-70, with a mean score of 38 being considered a high score or neophobic (de Andrade Previato & Behrens, 2015). The FNS scale scored a Cronbach's alpha of 0.92, which indicates that the scale has high internal reliability (Previato & Behrens, 2015).

Food Choice Questionnaire (FCQ)

To measure the factors that influence respondents' dietary choices, the Food Choice Questionnaire (Steptoe et al, 1995) was used. The purpose of the questionnaire was to assess a

range of factors that influence individuals' food selection. The questionnaire includes 36 questions assessing the importance of the factor's: health, mood, convenience, sensory appeal, natural content, price, weight control, familiarity, and ethical concern. Responses were measured using a 4-point Likert scale with 1 being not important at all and 4 being very important. Scores for each factor were calculated by averaging the ratings of each factor. Cronbach's alphas are as follows for each factor: Health (α= 0.83), Mood (α= 0.88), Convenience (α= 0.82), Sensory appeal (α= 0.75), Natural Content (α= 0.78), Price (α= 0.69), Weight Control (α= 0.83), Familiarity (α= 0.77) and Ethical Concern (α= 0.68) (Januszewska et al, 2011).

PROP Tasting Strips

N-Propylthiouracil tasting papers (PROP) were used for the genetic predisposition to taste the substance PROP (Brand: Bartovation, United States of America). PROP can taste like nothing, slightly bitter or extremely bitter depending on how sensitive individuals taste buds are to the specific chemical PROP. These strips are used in taste studies to differentiate between supertasters (individuals with increased taste sensitivity), average tasters and non-tasters (Bartoshuk et al, 1992). Participants in this study were given PROP tasting strips to identify their tasting status. Participants were asked to rate the intensity of what they tasted using a Labeled Magnitude Scale and their rating was converted to a numerical value of 1 – 100.

Edible Materials

Participants were asked to sample food snack items comprising of individually portioned 25g bag of Walkers Salt and Vinegar Crisps (Brand: Walkers, United Kingdom) equally split between three different colour bowls using a scale. Individual Kirkland Signature Spring 500ml

water bottles (Brand: Costco, United Kingdom) were given to participants to drink after the PROP taste strips and between different bowl tastings.

Tableware

Three separate coloured bowls (red, white, blue) containing the snack items were individually presented to participants. All three bowls were 355ml plastic party bowls and sourced online (red/white: Party Delights, UK; blue: Planet Party Limited, UK). The bowls were presented on a A4 white sheet of paper each with a corresponding letter in bold, font Times New Roman size 100. The red bowl was labelled A, the blue bowl labelled B and the white bowl was labelled C.

Labeled Magnitude Scale (LMS)

The Labeled Magnitude Scale (Green et al, 1996) is a scale of perceived intensity using a quasi-logarithmic spacing for its labels. The scale used a vertical line with magnitude labels "no sensation, barely detectable, weak, moderate, strong, very strong and strongest imaginable". Ratings on the Labeled Magnitude Scale are converted to a 1 – 100 range of numerical value.

Procedure

Participants were asked to only consume water 1 hour prior to coming into the laboratory to take part in the study. When participants arrived at the lab they were verbally probed on food allergies and asked if they had followed the pre-study guidelines. Those with food allergies were not allowed to participate and those who did not follow the pre-study guidelines had to reschedule. Participants then completed the FNS and FCQ followed by the PROP taste test. Participants were then instructed to take a sip of water to clear their palate. Next they completed the food taste test where an individual bowl (either red/blue/white) was presented to the participant with

the instruction to “taste some of the contents of the bowl and to rate the saltiness, flavour intensity and desirability of the snack using three separate LMS”. Once they finished rating the first bowl, the experimenter took the bowl and scoring sheet away and asked the participant to “take a sip of water”. This procedure was then repeated for the remaining two bowls. Participants were thanked for completing the study and told that they would be contacted after all the data had been completed, with more details about the aims of the study. The study took approximately 20 minutes and individuals who volunteered from the Participant Pool received 1 credit for completing the study.

Data Analysis

The data for food sensory ratings and taste sensitivity were checked for outliers (+/-3SD), where only 2 cases were found which were retained since their inclusion did not affect the main findings. The data were also checked for skewness which were within acceptable ranges. Based on previous work (de Andrade Previato & Behrens, 2015), individuals with a Food Neophobia Scale score of ‘38’ and above were categorized as picky eaters (PE), with those under ‘38’ categorized as non-picky eaters (N-PE). The two groups did not differ significantly in age or gender (Table 1).

Independent sample t-tests were used to analyse the difference in PE/N-PE PROP scores, as well as the difference in FCQ scores. A 2 x 3 mixed factorial ANOVA was used to investigate the relation between eating habits and colour on subjective taste. Three separate 2 x 3 mixed factorial ANOVAs were carried out, for each of the dependent variables: saltiness, desirability

and flavour intensity. In all cases, Mauchly's test of sphericity was not significant, indicating that sphericity had not been violated.

Results

Food Choices Questionnaire (FCQ)

Analyses of this data revealed a number of differences between the two groups (Table 2), in terms of the factors of mood, price, and ethical concern, which were all significantly less important when selecting food in the PE compared to N-PE group. There was a trend toward higher familiarity in the PE versus N-PE group, which was expected but this did not reach significance (p=.08).

PROP Taste Sensitivity

Against prediction we found no significant differences in perceived PROP intensity between the PE (M=16.33, SD=9.86) and N-PE (M=15.17, SD=14.91) groups, t(45)=0.30, p=.76.

Food Sensory Ratings

For saltiness, there was no main effect of Group (F = .02, p = .90), but a significant main effect of Colour, F(2,90) = 5.27, p = .007, η^2p = .11, where the crisps were rated as higher in saltiness in both the blue (p=.007) and red (p=.05) versus white bowls, with the former two not differing from each other (p=1). This was qualified by a significant Group x Colour interaction, F(2,90) = 6.07, p = .003, η^2p= .12, with separate pairwise comparisons revealing for PE, that saltiness was higher in the blue (p <.001) and red (p <.05) compared to white bowls, with the former two not differing from each other (Figure 1, Table 3). None of the comparisons in the N-PE group were significant (all ps >.70). The pairwise comparisons between the two groups for each colour were

not significant (all ps >.09). This suggests that in agreement with our prediction that colour influenced the perceived saltiness of the crisps in the PE but not N-PE.

In terms of desirability, there were no main effects of either Group (F = .53, p = .47) or Colour (F = 1.71, p = .19), but we did observe a significant Group x Colour interaction, F(2,90) = 3.28, p = .04, $\eta^2 p$= .07, with separate pairwise comparisons revealing for PEs, that desirability was highest in the blue versus red (p=.02) bowls with the remaining comparisons being non-significant (p>.30) (Figure 2, Table 3). None of the comparisons in the N-PE group were significant. The pairwise comparisons between the two groups for each colour were not significant (all ps >.098). Partially consistent with our hypothesis, this suggests that whilst colour had an influence on desirability for PE, this was not found for N-PE.

For flavor intensity, there were no main effects of Group (F = 1.16, p = .29), Colour (F = 1.83, p = .17).) or interaction (F = 2.04, p = .14) (Table 3).

Discussion

The main study findings were that the colour of the bowl in which the food was served had an influence on the perceived saltiness and desirability of the snack food for picky but not non-picky eaters, which is partially consistent with our prediction. For saltiness, PEs rated food eaten from the blue bowl as the saltiest, and the white bowl as least salty, which concords with our prediction and previous similar work by Harrar et al, (2011) who reported that popcorn served from a blue bowl had a 4% increase in saltiness perception. A similar study by Harrar and Spence (2013) found comparable effects: a blue coloured spoon generated an illusory saltiness in pink yogurt. It has been proposed that past expectations and experiences with eating foods from certain coloured cutlery or packaging might mediate the effect of colour on taste perception (Harrar & Spence, 2013). In the United Kingdom salty snacks are often sold in blue packaging (Piqueras-Fiszman & Spence, 2011) and using the association-expectation theory, it is believed that previous expectations that are based around the colour blue, might interact with saltiness beliefs, thereby explaining the increase in perceived saltiness. In contrast, it has been theorized that colour-food associations are based more on evolved natural food associations where colour is used as an index of food quality, e.g. the colour red is used as an indicator of the freshness/sweetness in fruit (Cashdean 1998). In support of that theory, work has shown that darker (versus lighter) red solutions are perceived as sweeter (Johnson & Clydesdale 1982). However, since there are not many natural fruits or vegetables that are coloured blue, this theory might not be applicable to this colour.

In terms of desirability, we found that for PEs only, ratings were higher in the blue versus red bowl condition, which on the one hand is consistent with our expectation for colour to have a greater influence in PE versus Non-PE. However, the direction of this effect is not consistent

with previous work where for instance, it was shown that red coloured packaging was perceived as most desirable (Van Esch et al., 2019) and more recently, that the use of vibrant red makes products appear more desirable (Tijssen et al, 2017). One possible explanation for these differences, could be due to the nature of the snack food used in the present study; specifically the salty flavour of the salt and vinegar crisps. Hence, since previous work has shown a positive relationship between the colour red and the taste related characteristics 'sweet' and 'fruity' (Koch & Koch, 2003), it is therefore possible that in the present study, there was a perceived mismatch between the colour red and the expected sweet/fruity food, whereby the unmet expectation resulted in a negative desire for the snack food. This would also be supported by other work where liking for the same food differed when expectancy (food descriptors) were manipulated (Yeomans et al., 2008). An alternative and more parsimonious explanation is that the findings here are due to inconsistencies on the effect of red colouring on food perception (Harrar & Spence, 2013). For instance, Moller et al (2009) proposed that the colour red is continuously used to represent danger, warning, or negative information. Given this common pairing, it is possible that people have negative mediated expectations when seeing the colour red. Thus, when presented with the red bowl in this current study, it could be that individuals' perception was impacted by previous expectations and the red was seen in a negative frame and thus the associated food was seen as less desirable.

The absence of an effect of colour or group on flavour intensity was against prediction. In terms of colour, previous work has found mixed evidence, where for instance, one study that changed the colour hue of chicken bouillon (different levels of yellow) reported effects for overall flavour intensity for young but not older participants (Chan & Kane-Martinelli, 1997). In contrast, no

effects were found in a similar study on flavour ratings in four flavoured drinks (Norton & Johnson 1987). Collectively with the findings here, this suggests that the ability of colour to influence intensity is rather transient and evidently independent of its effect on the sensory and hedonic evaluation of food. The finding of no differences between PE and N-PEs on flavour intensity is perhaps less surprising, given that there were no differences in the PROP taste test, which was against prediction. Previous work by Kauer et al, (2015) explored the correlates of picky eating in adults. In that study, adult PE were asked to rate the overall intensity of a bitter and sweet solution, demonstrating PE have increased taste sensitivity for both solutions compared to non-picky eaters. However, despite this research, it could be argued that measuring general taste sensitivity established from a single compound (PROP) is not a representative method to measure taste sensitivity in general. Hence, one could be insensitive to one compound such as 6-n-propylthiouracil (PROP) but very sensitive to another compound such as sweetness (Webb et al., 2015). Research by Keller and colleagues (2010) has also shown variation in the percentage of PROP sensitive tasters based on geographical location, with a large range in adult non-tasters can be seen around the world, from 3% in West Africa to 40% in India, which suggests that being a picky eater is not contingent upon taster status. More broadly, to gain a more reliable and ecologically valid measure of general taste sensitivity, future studies could consider using the suprathreshold intensity measure which uses a variety of prototypical tastant dilutions and LMS scales (Puputti et al, 2018). This method has demonstrated strong correlations between all five taste qualities (Webb et al, 2015).

The findings from the FCQ revealed differences between PE and N-PEs, with the factors of Mood, Price and Ethical Concern all being lower in the PE group, and a trend toward higher

scores/importance for familiarity in PEs. There is a lack of previous research on adult PEs to directly compare these findings, however in terms of Food Neophobia, there is some agreement with the present study, where work has consistently shown increases in food neophobia were associated with greater importance of FCQ-familiarity (Jaeger et al., 2017, 2021[1]). It is also worth noting that in qualitative research, that familiarity was an important theme arising from the lived experiences of adult PEs (Fox et al., 2018).

In considering the limitations of the present study, it needs to be acknowledged that due to an oversight in study protocol, participants were not screened for colour blindness and hence if any individuals suffering from poor colour vision participated in the study, their findings with respect to colour/taste would have been affected. However in the UK, colour blindness affects approximately 1 in 12 males but only 1 in 200 females (NHS 2022) and since the vast majority of participants in the present study were female, the chances of including individuals with colour blindness are somewhat reduced. It also needs to be noted that previous work looking at the influence of colour on varying food variables have not always screened individuals for colour vision ability (e.g. Kennedy et al., 2005; Suzuki et al., 2017).

Another possible limitation concerns the measure of picky eating. Across picky eating studies in general, there is a lack of standardisation with regards to the instruments and methods used to measure picky eating behaviours (Taylor et al, 2015). In the present study, the Food Neophobia scale (Pliner & Hobden, 1992) was used to determine whether participants were PE or N-PEs.

[1] In additional analyses in the present study, FNS and FCQ-Familiarity were also highly correlated across the sample (r=.44, p=.002)

One issue with this is the FNS does not directly measure picky eating, but instead measures one's avoidance of new foods. To an extent, this has been confirmed by the development of a more specific measure of picky eating (Ellis et al., 2017), whereby correlations between that new measure (APEQ) and the FNS revealed stronger associations in the factors of 'food variety' compared to 'food disengagement' (Ellis et al., 2018). As a consequence, the findings in the present study are best seen as relating more directly to food neophobia but due to the large crossover in the two conditions (Chao & Chang, 2017; Fox et al., 2018; Prescott et al., 2022), do offer preliminary evidence for picky eating research.

Finally, we acknowledge that due to difficulties in recruitment, we did not achieve an optimal number of participants, given the counterbalancing of presentation order (see Methods\Design), where multiples of six would have been required for a completely balanced design. Nevertheless, we maintain that this would be very unlikely to have affected the findings in the study.

This study is believed to be the first to provide insight into the interaction between colour and taste perception in adult picky and non-picky eaters and reveal a difference in the way that colour affects the perception of food in picky eaters. However, further research is required to see if these findings extend beyond the food/colours tested here and thereby clarify whether colours can alter the acceptability of foods for PEs. This knowledge could be useful for those trying to expand the repertoire of foods for such individuals. For instance, serving a vegetable well known to be viewed as bitter, on plate ware that is known to increase sweetness could help to modify the dislike of that vegetable. Additionally, mental health would be positively affected

through a growth in eating habits, leading to lower stress, through mending strained family and social relations.

Conflict of interests
The authors declare no conflicts of interest.

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Data Availability
Study data will be made freely available upon publication via the University's repository.

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Table 1. Distribution of sample as a function of Eating Habits

Demographics	Non-Picky Eaters	Picky Eaters
Gender		
Female	19	12
Male	7	8
Non-Binary	1	-
Age (*M, SD)*	19.44(1.42)	20.35(3.09)
Smoking Habits		
Non-Smoker	21	16
Smoker	6	4
Diet		
No Diet	26	17
Pescatarian	1	1
Vegetarian	-	1
Vegan	-	1

Table 2. Food Choice Questionnaire factors as a function of whether individual are picky eaters or non-picky eaters

Food Choice Category	*t(df)*	*p*	*r*	Non-Picky Eater (*M,SD)*	Picky Eater (*M,SD)*
Convenience	.22(44)	.83	.03	14.19(3.29)	14.40(2.96)
Health	.58(44)	.57	.08	14.15(3.29)	13.50(4.42)
Mood	2.39(45)	**.02**	.33	15.89(3.88)	13.05(4.21)
Sensory Appeal	.45(45)	.66	.07	11.85(2.48)	12.15(1.90)
Natural Content	.28(45)	.78	.04	5.22(1.72)	5.05(2.44)
Price	2.18(44)	**.04**	.31	9.73(1.87)	8.45(2.11)
Weight Control	.53(45)	.60	.08	5.93(2.02)	5.60(2.14)
Familiarity	1.80(45)	.08	.26	6.15(1.75)	7.05(1.64)
Ethical Concern	2.74(45)	**.01**	.39	5.19(1.80)	3.95(1.05)

* Significant results highlighted in bold

Table 3. Mean (SDs) Food Sensory Ratings As A Function Of Colour And Eating Habits

	Saltiness			Desirability			Intensity		
	Red	Blue	White	Red	Blue	White	Red	Blue	White
Non-Picky Eaters	39.33 (17.64)	35.59 (20.60)	36.68 (19.12)	39.15 (26.91)	37.07 (24.39)	39.22 (27.64)	47.04 (22.05)	41.22 (23.78)	44.81 (19.12)
Picky Eaters	37.85 (16.45)	43.70 (15.72)	28.45 (10.53)	27.65 (16.32)	41.10 (26.02)	33.30 (17.90)	42.75 (11.99)	42.00 (20.27)	33.25 (17.81)

Figure 1 Mean Saltiness Ratings By Group (Picky/Non-Picky Eaters) And Bowl Colour (Red, Blue, White

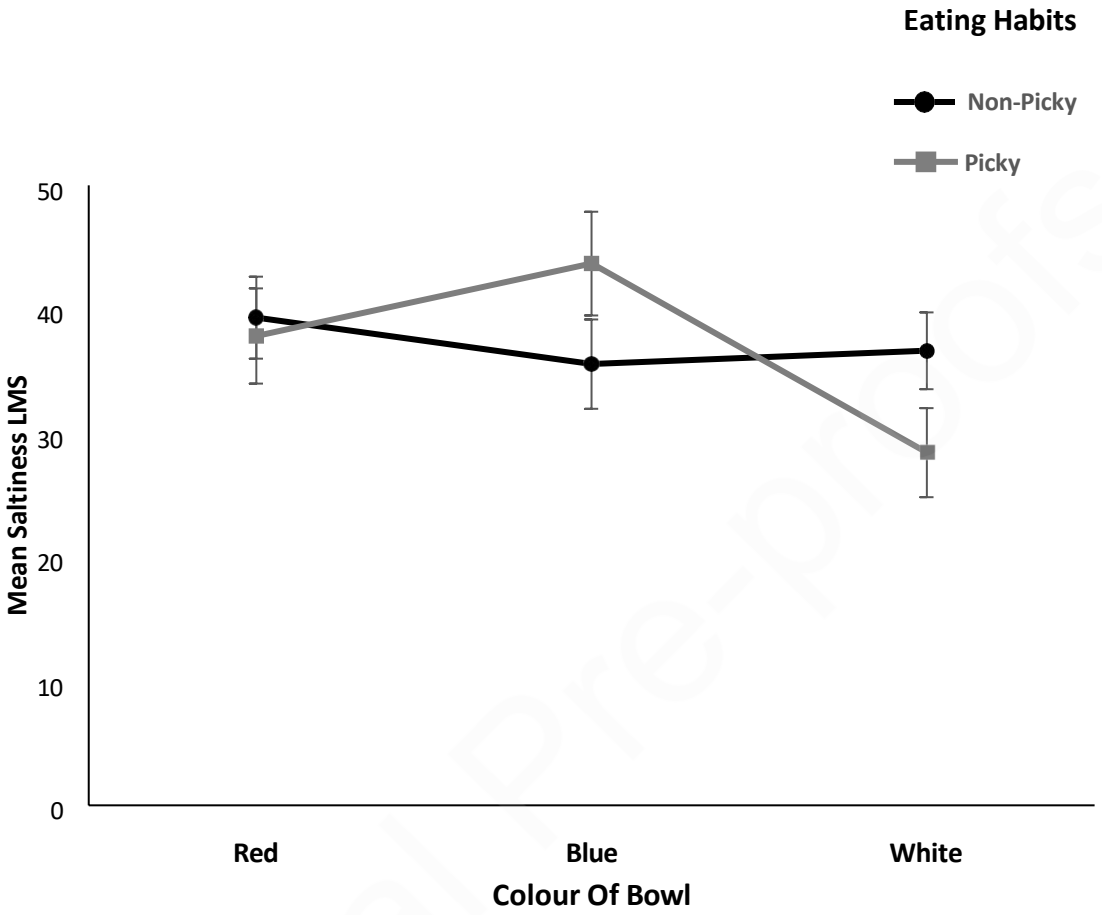

Figure 2 Mean Desirability Ratings By Group (Picky/Non-Picky Eaters) And Bowl Colour (Red, Blue, White