Identifying the Knowledge, Attitudes and Practice of the Purchasing and Consumption of Pulses across a Sample of UK Adult Population

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Introduction

England has a growing burden of obesity and overweight[1,] alongside a global food crisis relating to the cost, scarcity and sustainability of food[2]. Pulses play an important role in the solution to these two issues because:

- They are sustainable, accessible and relatively cheap source of food and protein[2]
- Pulse crops reduce greenhouse gas emissions, nitrogen use and land use[3]
- They are beneficial in the prevention and treatment of obesity[4]
- They reduce the risk of all-cause mortality, certain cancers, cardiovascular disease and diabetes[3]

However, there is a paucity of research on the consumption of pulses in the UK.

Study Aims

1. To identify patterns in the consumption of pulses within different socio-demographic groups.
2. To describe the general population's knowledge of pulses.
3. To identify specific barriers and drivers to the consumption of pulses.
4. To identify common practices in the consumption of pulses.
5. To identify from which retailers' pluses are regularly purchased.

Methods

Utilised a mixed method approach by employing an anonymous, self-administered, non-interventional web-based survey.
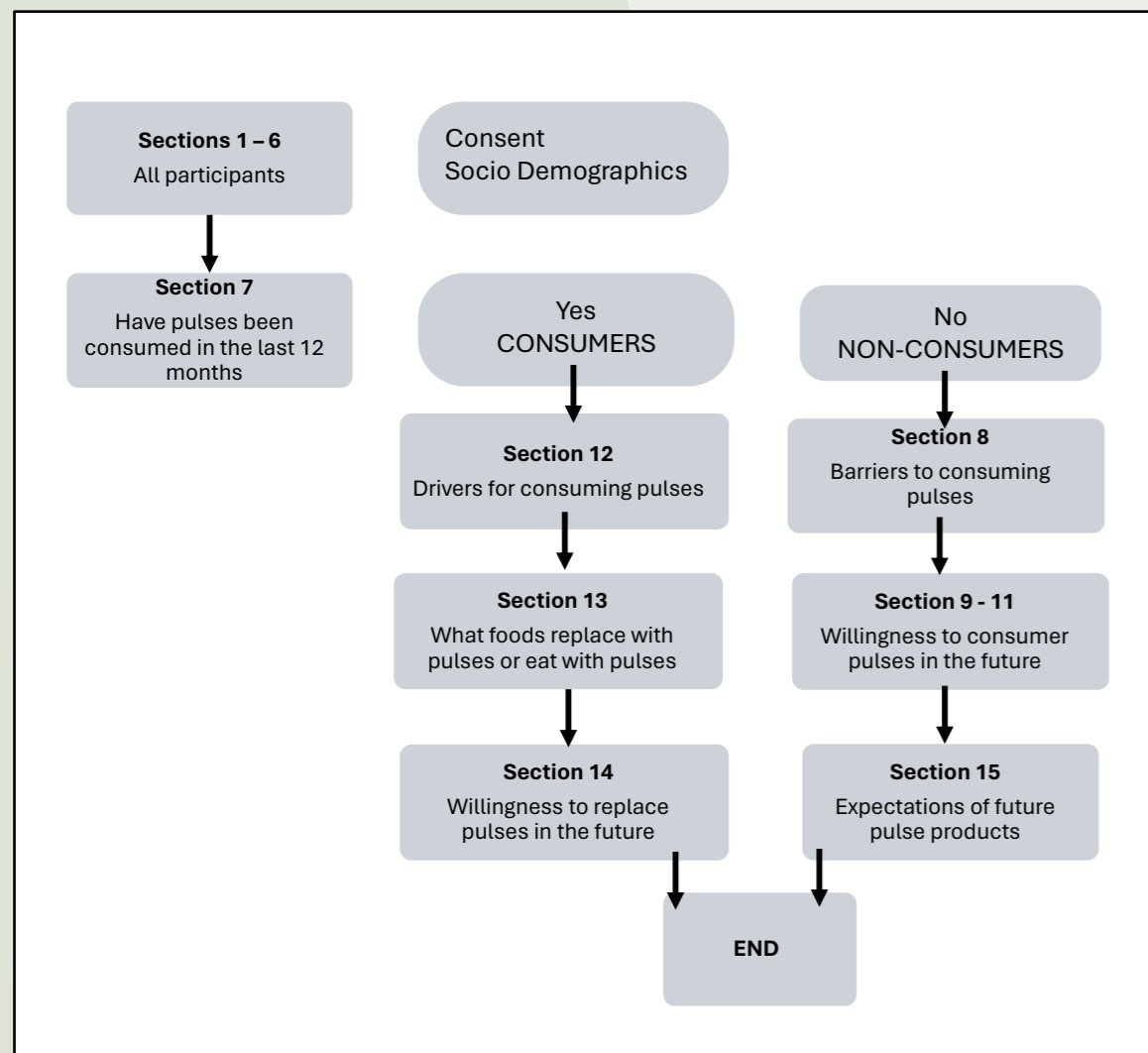

Figure 1 – Survey Flow

Data was analysed using IBM SPSS Statistical Software Version 29.0.0. using frequency, Chia Squared or Fisher's Exact test were to identify associations.

Results

61 participants completed the survey. Majority were female(n=41), consumers of pulses (n=59). under 41 years of age (n=30), of White British background (n=46) and omnivore (n=41)

Overall high frequency, high familiarity was evident with statistically significant associations between:

- frequency and variety of pulses $x^2(4)=25.844$, $p<0.001$.
- frequency and dietary preference $x^2(2)=11,497$, $p=0.003$
- age and variety of pulses $x^2(2)=6.02$, $p=0.048$

Table 1- Familiarity[1], Frequency[2] and Variety[3] of Pulse Consumption

Characteristic (n=61)	Low	Medium	High
Frequency	19.7%	6.2%	54.1%
Familiarity		4.9%	95.1%
Variety	36.1%	52.5%	11.5%

1 – Knowledge pulses (low scored < 5, medium <10, high > 10
2 – Time pluses eaten in a month (low sored < 2, medium , <=10, high> 10
3 – Number of different pulses consumed (low scored < 5, medium < 10, high >= 10)

- Health was cited as the main reason (39.6%) for consuming pulses and identified as the most common driver for consuming pulses (39.66%). Followed by sustainability (22.34%), convenience (21.79%) and sensory (16.21%). An association was identified between age and convenience $x^2=34.630$ $p=0.004$.
- Participants were provided with four identifiers for pulses. "Being Healthy" was the strongest identifier (86.9%). The other three identifiers ranked were "Being Filling" (63.9%), "Being Natural" (54.1%) and "Being Bland" (7.1%.).

- This pattern was repeated when participants linked the identifier to specific pulse varieties (Figure 2).
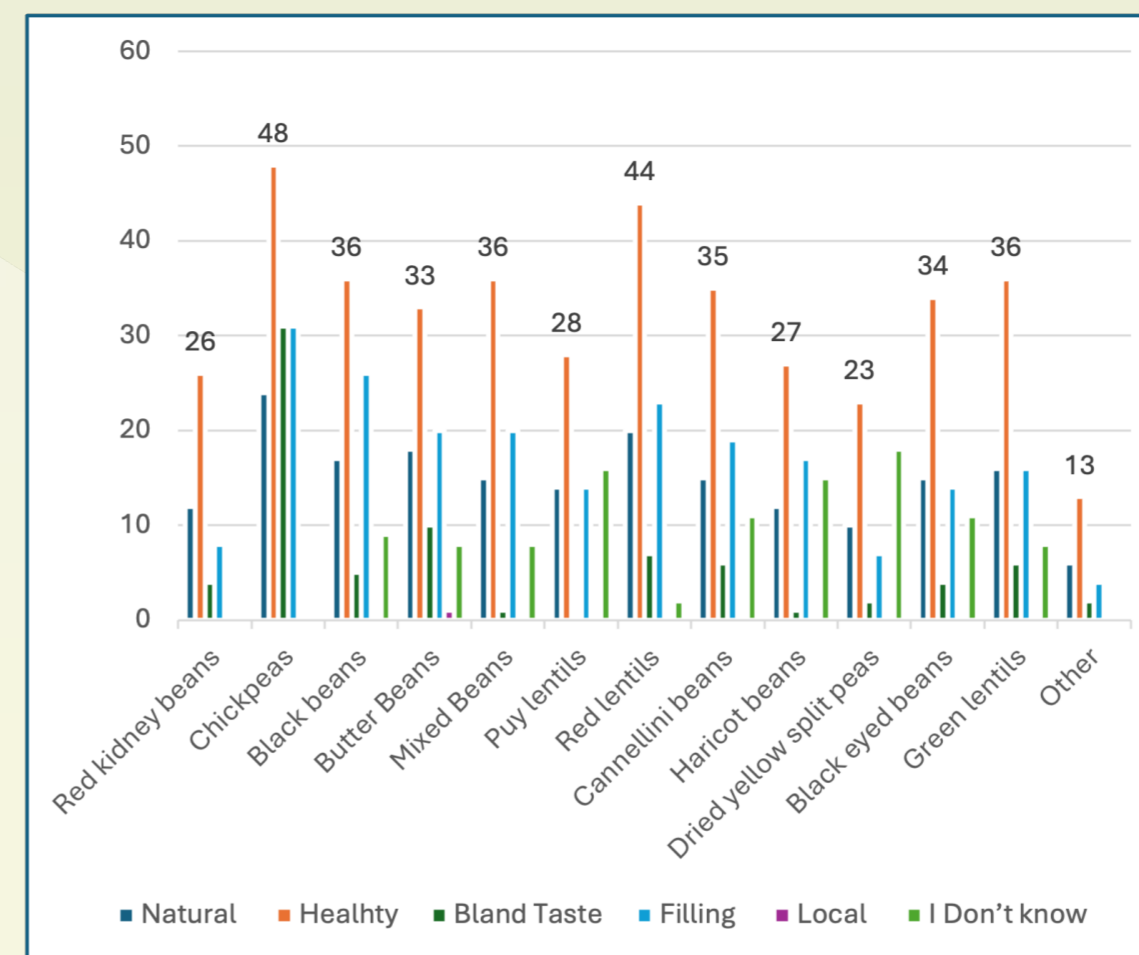

Figure 2 – How Consumers Identify with Different Pulses

- Red kidney beans, chickpeas and red lentils were the most common pulses consumed and 88% of all pulses are consumed within the home.
- Most pulses were purchased at either Co-Op (19.93%) and M&S (19.61%), followed by Waitrose (15.03%) and Sainsbury (11.11%).

- Statistically significant associations were identified between age and being healthy identifier ($x^2=10.1060$, $p=0.001$) and ethnicity and being filling identifier ($x^2=8.078$, $p=0.011$).
- In general pulses are paired with vegetables the most (24. 6%) followed by poultry(10.54%) and then beef (9.74) (Figure 3). There was a strong agreement about replacing meat products with pulses (41%), replacing meat with pulse-based products (24.6%) and replacing meat with pulse-based meat substitutes (27.9%).
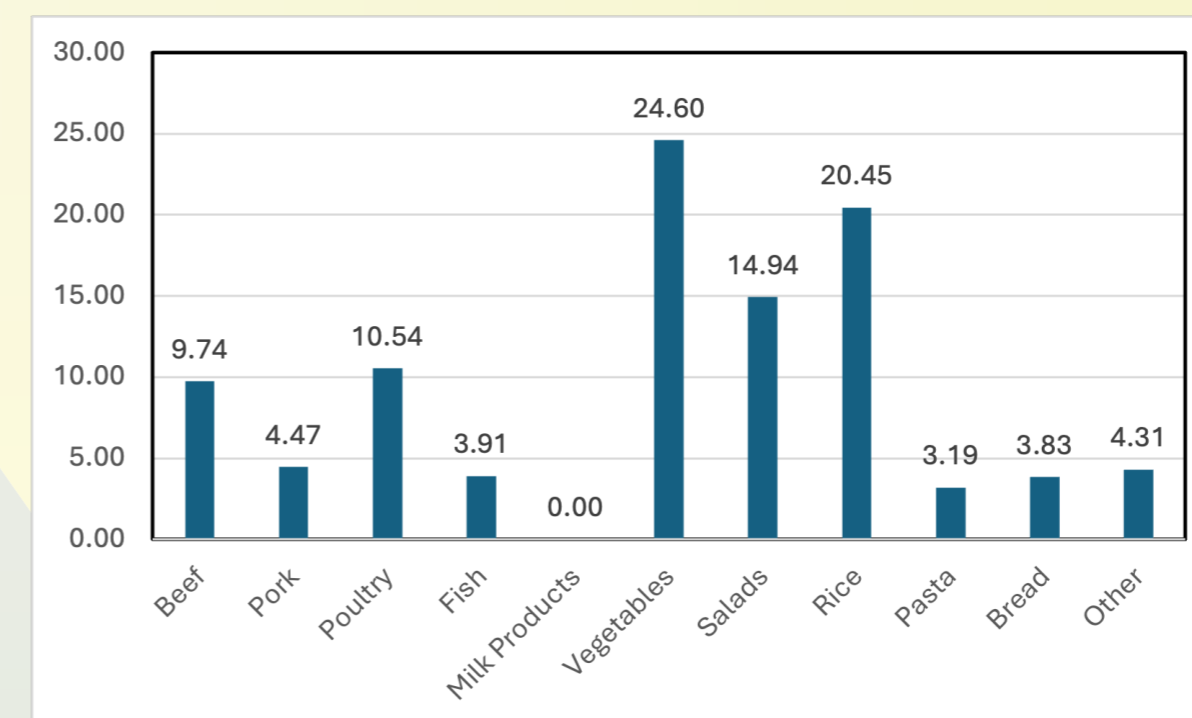

Figure 3 - Food and Pulse Pairings

Conclusions

- Health is the main driver for consuming pulses, with age and ethnicity having the strongest associations. Health is reported as a strong and common reason for moving to vegetarian or plant-based diet[7].
- Regardless of levels of familiarity or frequency of pulse consumption, only a small variety of pulses are consumed.
- Pulses are commonly paired with vegetables to boost the protein content of a meal or with beef or poultry.
- Pulses are often used to paired with or replace meat protein to reduce meat consumption as a strategy for improving health. This approach is considered both appealing and achieivable[6]
- The top four retailers represent a mix of high and middle-priced supermarkets which is reflection of majority of participants (57.4%) earning >£55,000[8.]
- Ethnicity and economic status play a role in the choice of dietary protein[9].
- Owing to the small sample size further research is required to reach a wider and more diverse population sample to determine:
  - the impact of the various socio-demographics on the consumption of pulses
  - what the barriers and drivers for consumption are
  - why people are eating so few varieties of pulses

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