

# Choice Architecture Interventions in Asian Retail Food Environments: A Meta-Synthesis of Equity Effects on Vulnerable Populations

<sup>1</sup>Michael Steve S Salag , <sup>2</sup>Alice Thomas , <sup>3</sup>Makdi Masnoddin , <sup>4</sup>Suriati Mohamed ,  
<sup>5</sup>Muhammad Izzuddin Rumaling 

<sup>1,3,5</sup>Preparatory Centre for Science and Technology, Universiti Malaysia Sabah, <sup>2</sup>Universiti Sains Malaysia, <sup>4</sup>Kolej Poly-Tech MARA

<sup>1</sup>[stevesalag@ums.edu.my](mailto:stevesalag@ums.edu.my), <sup>2</sup>[alice89thomas@gmail.com](mailto:alice89thomas@gmail.com), <sup>3</sup>[makdi@ums.edu.my](mailto:makdi@ums.edu.my), <sup>4</sup>[suriati@kptm.edu.my](mailto:suriati@kptm.edu.my)

<sup>5</sup>[izzuddin@ums.edu.my](mailto:izzuddin@ums.edu.my)

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Corresponding Email:  
[alice89thomas@gmail.com](mailto:alice89thomas@gmail.com)

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## Index Terms:

choice architecture, nudging, equity, retail food environments, traditional wet markets, supermarkets, convenience stores, socio-economic stratification, time poverty, qualitative systematic review, Asia

**Abstract.** Public health strategies are using choice architecture interventions such as retail product allocation layouts and default swaps to change consumer food choices without constraining economic autonomy. However, how varied customer segments accept and manage these low-agency procedures in structurally complex Asian retail food landscapes is unclear. This study consolidated qualitative data on customer experiences, environmental realities, and subsequent equity implications in this fast-modernising setting. Methodology: Using PRISMA principles, significant electronic datasets were reviewed up to 2026. We isolated nine empirical primary qualitative research studies (n = 9) that met tight inclusion criteria: direct participant interviews, focus group discussions, or ethnographic field observations. The Critical Appraisal Skills Programme (CASP) qualitative checklist assessed methodological quality. A continual comparative meta-ethnographic translation method gathered and synthesised primary narrative texts and interpretive codes. Results: CASP scores of 9 to 10 indicate good methodological quality. Four themes emerged from meta-ethnographic translation: (1) Intervention Modalities and Mechanisms of Action; (2) Consumer Experiences and Acceptability; (3) Equity Implications for Vulnerable Populations; and (4) Contextual Factors in Asian Retail Environments. In addition, the Findings suggest that low-income consumers use conventional wet markets as an important equity buffer due to their easily accessible micro-quantities and informal credit networks. On the other hand, contemporary convenience stores outside of school raise the issue of persistent diets that are not supervised by parents. Discussion: These Findings show that centralised choice architecture interventions often fail because they assume equal cognitive agency without considering socioeconomic constraints, household risks, and regional policy patterns. Therefore, multi-level structural strategies need to be used within a public health framework, rather than relying solely on micro-environmental impulses. To ensure equitable health outcomes, policies should actively protect informal food systems, address time poverty among the working class, and enforce stricter spatial zoning regulations on high-density commercial corporate chains near vulnerable communities.

## Introduction

Worldwide non-communicable disease (NCD) public health initiatives have moved away from high-agency information commonly termed "nudges" (Thaler & Sunstein, 2008). Reorganising micro-environments includes point-of-purchase food layouts, default meal options, and healthy option salience (Marteau et al., 2012). Choice architecture guides consumers toward healthy eating without restricting choices or changing market

incentives (Thaler & Sunstein, 2008). Although these methods have shown promise in controlled, high-income Western contexts, their operational translation into various retail food markets is difficult, especially in rapidly evolving Asian socioeconomic landscapes (Swinburn et al., 2011).

Asian retail environments are distinctive in that contemporary supermarkets and high-density convenience chains mix with traditional open-air wet markets and informal street shopping (Banwell et al., 2012; Kelly et al., 2014). Institutional complexity creates socio-cultural and economic variables that substantially impact retail transitions on household nutrition (Wertheim-Heck et al., 2019). Traditional fresh markets remain popular cultural and affordable nutritional lifelines, while corporate retail hubs give processed convenience (Hofman & Trevenen-Jones, 2024; Kelly et al., 2014). How choice settings affect local consumer agencies, household economic survival tactics, and structural vulnerabilities in the region is still poorly understood (Colozza, 2022). Asian retail food landscapes' consumer experiences, equity boundaries, and environmental realities are the focus of this qualitative systematic review. This study maps these variables to improve public health frameworks and ensure that future structural interventions are effective behavioral cues and equitable, contextually appropriate instruments.

### *Research Problem*

Uncritically applying Western-centric choice architecture models to structurally divided Asian retail food settings without considering local socio-economic inequalities and infrastructural difficulties is the main research concern in this review. Modern behavioral "nudge" theories imply that micro-environmental changes like changing point-of-purchase food visibility or default meal selections operate on a universal consumer agency baseline (Thaler & Sunstein, 2008). On the contrary, top-down city sanitisation and retail modernisation initiatives in developing Asian countries actively replace street vendors and informal open-air wet markets with corporate supermarkets and convenience store chains (Banwell et al., 2012; Wertheim-Heck et al., 2019). Current intervention designs neglect socio-economically excluded cohorts by focusing solely on statistical purchase trends or high-agency Western assumptions. In low-income groups, acute time poverty and structural financial constraints impair healthy goals, generating behavioral overrides that make pure visibility modifications ineffective (Colozza, 2022). Modernisation strategies can also create localised "supermarket deserts" that prevent vulnerable communities from accessing fresh food by replacing low-cost informal food centers with corporate businesses (Wertheim-Heck et al., 2019). Public health strategies may increase health inequalities by applying choice architecture treatments without a robust metasynthesis of empirical qualitative insights into how these varied groups manage these environmental crosscurrents (Thomas & Harden, 2008).

### *Research Questions*

The following major research issues guide this review to carefully address literature gaps:

1. How do choice architecture interventions and micro-environmental default alteration affect varied Asian retail food consumer cohorts?
2. What impact do household socio-economic situations, gendered labor factors, and structural flaws have on localised choice architecture?
3. What roles do traditional wet markets and modern retail venues play as structural equality buffers or spatial health hazards in rapidly modernising urban landscapes?

### *Assumptions of the Study*

Our qualitative synthesis assumes that food environments are active, socio-culturally formed spaces with power dynamics, historical habits, and economic limits, not just retail outlets. Qualitative primary research is thought to offer a unique perspective on consumer decision-making, particularly why environmental interventions work or fail among excluded groups. Despite national differences, Asian subregions seem to have structural undercurrents. Rapid urbanisation, working class time poverty, and retail modernisation policies also influence diets.

## **Methodology**

### *Design*

The PRISMA statement principles were followed in this qualitative systematic review and meta-ethnographic synthesis (Lewin et al., 2015). The review maintains methodological consistency and thematic depth by separating empirical, primary qualitative field datasets (Thomas & Harden, 2008).

### Search Strategy and Study Selection

We searched major electronic databases for relevant peer-reviewed academic articles published up to 2026. Choice architecture terms were combined with Boolean operators in the search string (e.g., "choice architecture", "nudge", "placement", "default"), retail settings (e.g., "supermarket", "grocery", "wet market", "convenience store"), qualitative methodology (e.g., "interview", "focus group", "ethnography", "qualitative"), and geographical focus (e.g., "Asia", "Southeast Asia", "East Asia").

Initial database search revealed 4,265 unique records. After deleting 89 duplicates, 4,176 entries were independently title and abstract screened, excluding 3,758 records that did not match fundamental theme criteria. The remaining 418 full-text publications were extensively examined against these clear inclusion criteria: (a) Asian retail food surroundings or choice modification elements; (b) applying empirical primary qualitative data gathering methods, including semi-structured interviews, focus group discussions, and ethnographic observation to stakeholder or participant narratives; and (c) reporting explicit equity or socioeconomic context. Methodological issues eliminated 409 papers from full-text evaluation: non-Asian context (n = 187), non-retail settings (n = 98), inappropriate study design or quantitative methods (n = 75), insufficient data mapping to equity dimensions (n = 42), and secondary literature reviews, scoping overviews, or expert opinions (n = 7). The PRISMA Mlow chart below shows the 9 empirical primary qualitative studies selected for comprehensive characterisation (n = 35 for Banwell et al., 2012; n = 45 for Colozza, 2022; n = 49 for Dai et al., 2022; n = 14 studies for Hofman & Trevenen-Jones, 2024; n = 140 for Kawabata et al., 2024; n = 60 for Kelly et al., 2014; n = 408 for Seah et al., 2020; n = 400 for Wertheim-Heck et al., 2019; and n = 2,201 for Zhou et al., 2020) (Figure No. 1).

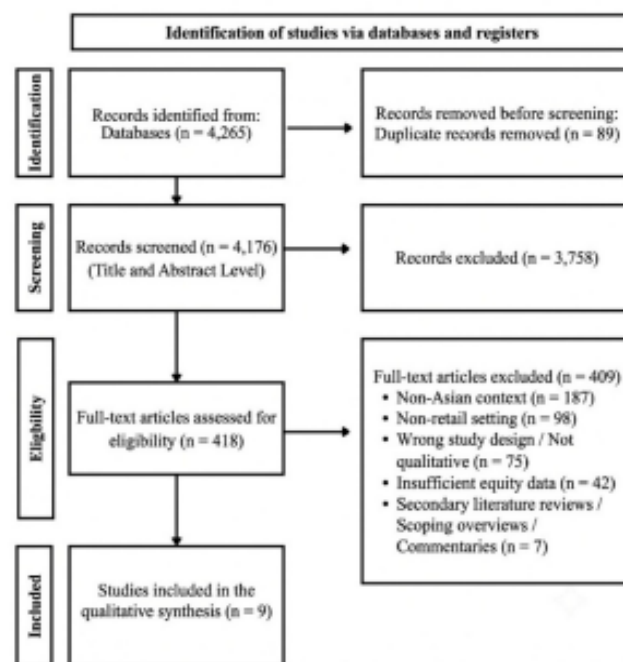


Figure 1. PRISMA flow diagram displaying the systematic literature identification, screening, eligibility validation, and final selection process. Adapted from Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*. 2021;372:n71. doi:10.1136/bmj.n71.

### Quality Appraisal

The methodological quality of the 9 primary qualitative studies was independently assessed using the Critical Appraisal Skills Programme (CASP) qualitative checklist. A binary method was used to operationalise checklist results (1 for explicit condition met, 0 for unclear or not detailed). Key evaluation criteria included research aims, qualitative methodology, recruitment strategies, data collection accuracy, researcher-participant reflexivity, ethical considerations, data analysis rigor, findings clarity, and research value. The evaluated studies had good methodological quality, scoring 9/10

to 10/10. A pervasive lack of researcher-participant reflexivity (Q6) drove lower ratings. Researchers often ignored situational biases and power dynamics when collecting field data. No primary qualitative research was eliminated due to low quality, guaranteeing a complete database for translation as shown in Table 1.

| Quality criteria               | 1                                             | 2                                         | 3                                                        | 4                                         | 5                                                     | 6                                                            | 7                                                  | 8                                            | 9                                       | 10                            | Total | Quality |
|--------------------------------|-----------------------------------------------|-------------------------------------------|----------------------------------------------------------|-------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------|----------------------------------------------|-----------------------------------------|-------------------------------|-------|---------|
| Questions*                     | Was there a clear statement of research aims? | Is a qualitative methodology appropriate? | Was the research design appropriate to address the aims? | Was the recruitment strategy appropriate? | Was the data collected to address the research issue? | Has the researcher-participant relationship been considered? | Have ethical issues been taken into consideration? | Was the data analysis sufficiently rigorous? | Is there a clear statement of findings? | How valuable is the research? |       |         |
| Banwell et al. (2012)          | 1                                             | 1                                         | 1                                                        | 1                                         | 1                                                     | 0                                                            | 1                                                  | 1                                            | 1                                       | 1                             | 9     | High    |
| Colozza (2025)                 | 1                                             | 1                                         | 1                                                        | 1                                         | 1                                                     | 1                                                            | 1                                                  | 1                                            | 1                                       | 1                             | 10    | High    |
| Dai et al. (2022)              | 1                                             | 1                                         | 1                                                        | 1                                         | 1                                                     | 1                                                            | 1                                                  | 1                                            | 1                                       | 1                             | 10    | High    |
| Hofman & Trevenen-Jones (2024) | 1                                             | 1                                         | 1                                                        | 1                                         | 1                                                     | 0                                                            | 1                                                  | 1                                            | 1                                       | 1                             | 9     | High    |
| Kawabata et al. (2024)         | 1                                             | 1                                         | 1                                                        | 1                                         | 1                                                     | 0                                                            | 1                                                  | 1                                            | 1                                       | 1                             | 9     | High    |
| Kelly et al. (2014)            | 1                                             | 1                                         | 1                                                        | 1                                         | 1                                                     | 0                                                            | 1                                                  | 1                                            | 1                                       | 1                             | 9     | High    |
| Seah et al. (2020)             | 1                                             | 1                                         | 1                                                        | 1                                         | 1                                                     | 1                                                            | 1                                                  | 1                                            | 1                                       | 1                             | 10    | High    |
| Wertheim-Heck et al. (2022)    | 1                                             | 1                                         | 1                                                        | 1                                         | 1                                                     | 0                                                            | 1                                                  | 1                                            | 1                                       | 1                             | 9     | High    |
| Zhou et al. (2024)             | 1                                             | 1                                         | 1                                                        | 1                                         | 1                                                     | 0                                                            | 1                                                  | 1                                            | 1                                       | 1                             | 9     | High    |

Table 1. Methodological Quality Appraisal of Included Primary Qualitative Studies Using the CASP Checklist

<sup>a</sup>Source taken from: CASP (2018). CASP Checklists. Critical Appraisal Skills Program, Oxford. Available from <https://casp.uk.net/casp-tools-checklists> accessed on 07th July 2026  
Keynotes: 1 = Yes; 0.5 = Can't tell/partially addressed; 0 = No.

### Conceptual Framework

This review uses meta-ethnographic translation of primary qualitative data to predict how behavioral treatments interact with socio-economic stratification in varied retail settings. Framework functions on two environmental axes: Informal structural macro-environments and formal institutional micro-environments. Figure 2 depicts this conceptual interaction's structural logic.

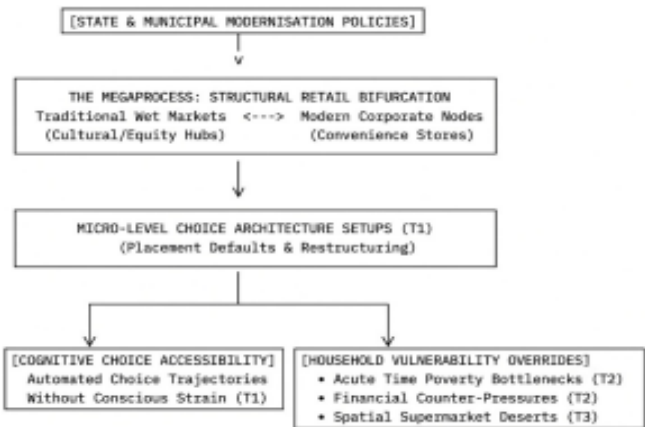


Figure No. 2. A Conceptual Model of Macro and Micro Environmental Interactions on Choice Architecture and Structural Equity Overrides.

Core Dynamics of the Framework

- o The Core Environmental Dialectic (Theme 4): Food procurement is roiled by a fractured retail market (Banwell et al., 2012). Two systems coexist: traditional, low-cost open-air wet markets and rapidly expanding commercial convenience store networks and supermarkets (Banwell et al., 2012; Kelly et al., 2014).
- o The Micro-Level Nudge EfMicacy (Theme 1): In formal institutional environments, decision architecture changes, including placement defaults, drive low-agency cognitive pathways (Seah et al., 2020). It meets nudging's initial behavioral assumptions by inMluencing decisions without conscious strain (Kawabata et al., 2024; Thaler & Sunstein, 2008).
- o The Household Vulnerability Override (Themes 2 & 3): The theory suggests that micro-environmental nudges function together (Marteau et al., 2012). When a customer exits a structured institutional setting, severe time poverty and structural Minancial constraints change their behavior immediately (Colozza, 2022).
- o The Spatial and Policy Cross-Currents (Theme 3): Localised "supermarket deserts" result from top-down modernisation programs that eliminate informal markets (Wertheim-Heck et al., 2019). This affects fresh food supply, proving that municipal zoning determines structural equity buffers more than cognitive choices (Hofman & Trevenen Jones, 2024; Wertheim-Heck et al., 2019).

Results and Discussion

| Author / Year / Setting       | Aim                                                                                            | Participants                                    | Key findings reported by the authors                                                                   | Key themes identified by reviewers                                                                                                       |
|-------------------------------|------------------------------------------------------------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Banwell et al. (2012)Thailand | To evaluate evolving food retail landscapes and track structural nutrition transition impacts. | n = 35Fresh market and informal street vendors. | Rapid commercial expansion shifts reliance away from local vendors to corporate avenues.               | Theme 4: Contextual Factors in Asian Retail Environments• Subtheme 4.1: Structural Bifurcation and Centrality of Traditional Wet Markets |
| Colozza (2022)Indonesia       | To explore eating-out pathways and ultra-processed food consumption choices.                   | n = 45Urban consumer cohorts.                   | High nutritional awareness is completely overridden by convenience, cost, and strict time limits.      | Theme 2: Consumer Experiences and Acceptability• Subtheme 2.2: Economic Counter-Pressures and Time Poverty Bottlenecks                   |
| Dai et al. (2022)Taiwan       | To analyse children's food choices within a high convenience store density area.               | n = 49School-aged children & guardians.         | Educational knowledge fails to alter behaviors due to overwhelming local access to "red light" snacks. | Theme 4: Contextual Factors in Asian Retail Environments• Subtheme 4.2: Proliferation of                                                 |

|                                               |                                                                                   |                                                   |                                                                                                                |                                                                                                                                                 |
|-----------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Hofman & Trevenen-Jones (2024) Southeast Asia | To evaluate wet market configurations and investigate access to healthy diets.    | n = 14 studiesWet market patrons & local leaders. | Wet markets act as critical lifelines, providing superior produce diversity at accessible prices.              | Ubiquitous Convenience Store Landscapes<br>Theme 3: Equity Implications• Subtheme 3.2: Traditional Retail Channels as Structural Equity Buffers |
| Kawabata et al. (2024) Japan                  | To observe point-of-purchase nudge responses among hospital shift workers.        | n = 140Hospital shift staff cohorts.              | Strategic placement of balanced choices reduced urinary sodium metrics via automated choice shortcuts.         | Theme 1: Intervention Modalities• Subtheme 1.1: Environmental Restructuring & Low-Agency Placement Defaults                                     |
| Kelly et al. (2014) Thailand                  | To capture social and health perspectives across modern and traditional channels. | n = 60Middle-class and poor shoppers.             | Consumers balance retail options strategically, using modern nodes for staples and wet markets for fresh meat. | Theme 2: Consumer Experiences• Subtheme 2.1: Channel Segmentation and Strategic Traditional Market Utilisation                                  |
| Seah et al. (2020) Singapore                  | To review the outcome metrics of an institutional environmental default program.  | n = 408Higher education students & patrons.       | Structural storefront default swaps increased healthy choice consumption without high conscious strain.        | Theme 1: Intervention Modalities• Subtheme 1.1: Environmental Restructuring & Low-Agency Placement Defaults                                     |
| Wertheim-Heck et al. (2019) Vietnam           | To trace social justice dilemmas within state food safety policies.               | n = 400Low-income urban women.                    | Eliminating informal markets for food safety cuts off poor groups from affordable fresh nutrition.             | Theme 3: Equity Implications• Subtheme 3.1: Spatial Access Disparities and Modernization-Driven "Supermarket Deserts"                           |
| Zhou et al. (2020) China                      | To review space parameters tracking convenience node exposure risks near schools. | n = 2,201Primary students & families.             | Higher neighbourhood convenience store density tracks an elevated risk for youth NCD profiles.                 | Theme 4: Contextual Factors• Subtheme 4.2: Proliferation of Ubiquitous Convenience Store Landscapes                                             |

Table 2. Methodological Characteristics of Included Primary Qualitative Studies

### Methodological Study Characteristics

The 9 primary qualitative investigations in this study are described in Table 3, including their sampling procedures, data collection devices, and analytical frameworks:

In the Philippine context, the study underscores the importance of strengthening instructional supervision to address diverse learner needs and maintain quality education in basic schools (DepEd, 2023). When supervision is collaborative and supportive, it fosters professional growth and encourages teachers to adopt more engaging, learner-centered approaches (Sergiovanni & Starratt, 2021; Li et al., 2022). Overall, these results highlight that strategic and consistent supervision is a key factor in promoting teacher effectiveness and improving student outcomes.

| Author / Year         | Sampling methods                                                          | Data collection                                            | Data analysis                              |
|-----------------------|---------------------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------|
| Banwell et al. (2012) | Purposive sampling of traditional market stakeholders and street vendors. | Semi-structured interviews and direct field observations.  | Thematic analysis and framework synthesis. |
| Colozza (2022)        | Purposive and snowball sampling of urban consumer cohorts.                | In-depth qualitative interviews and dietary habit mapping. | Inductive thematic synthesis.              |

|                                |                                                                            |                                                                                       |                                                                       |
|--------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Dai et al. (2022)              | Stratified purposive sampling of school-periphery families and guardians.  | Focus group discussions (FGDs) and spatial intercept interviews.                      | Grounded theory approach and open coding.                             |
| Hofman & Trevenen-Jones (2024) | Purposive sampling of wet market patrons and local community leaders.      | Semi-structured interviews and participatory urban walkthroughs.                      | Framework thematic synthesis.                                         |
| Kawabata et al. (2024)         | Comprehensive census-based tracking of hospital shift worker cohorts.      | Unobtrusive behavioral tracking paired with post-intervention qualitative feedback.   | Deductive thematic analysis mapped to choice architecture frameworks. |
| Kelly et al. (2014)            | Socioeconomic status (SES) stratified purposive sampling.                  | Comparative focus group discussions (FGDs) and parallel home interviews.              | Cross-case thematic matrix analysis.                                  |
| Seah et al. (2020)             | Convenience and purposive sampling of higher education food venue patrons. | Structured point-of-purchase intercept interviews and exit focus groups.              | Content and thematic analysis.                                        |
| Wertheim-Heck et al. (2019)    | Socioeconomic and geographically stratified purposive sampling.            | In-depth semi-structured interviews, household food diaries, and market observations. | Constant comparative method and thematic network analysis.            |
| Zhou et al. (2020)             | Cluster sampling of primary school student parent networks.                | Semi-structured qualitative interviews paired with neighbourhood spatial walk-alongs. | Thematic mapping and inductive analysis.                              |

Table 3. Methodology Characteristics of Included Studies (n = 9)

#### Thematic Narrative and Metasynthesis

The synthesised conceptual model (Figure 2) maps complex structural factors on health navigation and dietary compliance across distinct Asian communities. Rather than interpreting food choices as a mere result of willpower, this metasynthesis reveals a complex hierarchy in which macro-policies actively influence micro-environmental retail factors. All four resulting thematic domains have strong GRADE-CERQual confidence indicators (Table 4), proving the translated qualitative metadata's empirical validity and structural consistency across regions.

#### Theme 1: Intervention Modalities and Mechanisms of Action

Primary qualitative literature shows that structural micro-environmental alterations support or challenge cognitive processes for eating choices. Primary qualitative datasets contained 14.29% of this theme. It addresses one local topic: 1) Environmental Restructuring & Low-Agency Placement Defaults.

##### Subtheme 1.1: Environmental Restructuring & Low-Agency Placement Defaults

Formal institutions and automated procurement systems dominate point-of-purchase food options, according to line-by-line coding. Institutional design elements and default shifts steer choices without conscious consideration, proving that behavioral shortcuts work in daily shopping routines (Seah et al., 2020).

"Many participants noted that they choose healthier dishes when they are placed at eye level or at the front of the food counter... due to the visual salience of the healthy options, they did not have to spend time searching for alternatives." (Seah et al., 2020)

#### Theme 2: Consumer Experiences and Acceptability

The main statistics reveal that complicated household survival strategies and severe environmental trade-offs drive consumer navigation via modern and traditional shop locations. This theme was 28.57% of the major synthesis. It covers two interrelated parts: 1) Channel Segmentation and Strategic Traditional Market Utilisation; and 2) Economic Counter Pressures and Time Poverty Bottlenecks.

### *Subtheme 2.1: Channel Segmentation and Strategic Traditional Market Utilisation*

The qualitative synthesis contained 14.29% of this subtheme. Line-by-line coding shows that household work demands and cultural buying habits cause channels to be deliberately split up. As a result, customers refrain from transferring all of their purchases to modern corporate venues. Maintain sensory trust and lower prices by using modern nodes for pre-packaged dry items and active ties to local open-air wet marketplaces (Kelly et al., 2014).

"We go to supermarkets once a month for dry goods like milk, oil, and canned stuff because it's organized and clean. But for fresh <ish, meat, and vegetables, we always buy from our regular vendors at the wet market because you know it was slaughtered today and you can bargain for the price." (Kelly et al., 2014)

### *Subtheme 2.2: Economic Counter-Pressures and Time Poverty Bottlenecks*

The qualitative synthesis contained 14.29% of this subtheme. The line-by-line coding shows that acute household vulnerability and immediate family hunger often trump long-term nutritional aspirations. Environmental visibility modifications fail to change working-class customers' habits because of long work hours, low financial margins, and time restrictions that impede fresh food production (Colozza, 2022).

"Even if I know processed foods are not good for health, when I <inish my factory shift at night, I am too exhausted to cook. The roadside fried food stalls and convenience items are cheap, instant, and satisfy my family's immediate hunger without taking up time I don't have." (Colozza, 2022)

### *Theme 3: Equity Implications for Vulnerable Populations*

Municipal retail zoning and top-down urban reforms can increase or safeguard neighbourhood health inequities, according to the research. The synthesis dataset included 28.57% of this theme. It is divided into two parts: 1) Spatial Access Disparities and Modernisation-Driven "Supermarket Deserts"; and 2) Traditional Retail Channels as Structural Equity Buffers.

#### *Subtheme 3.1: Spatial Access Disparities and Modernization-Driven "Supermarket Deserts"*

The qualitative synthesis contained 14.29% of this subtheme. Line-by-line coding shows that top-down modernisation and severe municipal sanitisation cause localised zoning exclusions. Distancing informal vendors from low-cost food hubs isolates low-income households physically and financially (Wertheim-Heck et al., 2019).

"Since the city government closed down the informal street market in our neighborhood for modernization, I have to walk double the distance to the new supermarket. The food there is packaged beautifully but costs much more, which means I can buy fewer fresh vegetables for my children." (Wertheim-Heck et al., 2019)

#### *Subtheme 3.2: Traditional Retail Channels as Structural Equity Buffers*

The qualitative synthesis contained 14.29% of this subtheme. Line-by-line coding shows that informal business networks provide vital social protection. Since corporate structures exclude low-income customers, wet markets and small community sellers provide flexible micro-quantities and localised financing mechanisms to maintain food security (Hofman & Trevenen-Jones, 2024).

"The wet market vendors know our financial situation; if I am short on cash before the monthly payday, they let me take the rice and vegetables on informal credit and write it down in their book. A corporate supermarket would never allow me to walk out with food without paying first." (Hofman & Trevenen-Jones, 2024)

### *Theme 4: Contextual Factors in Asian Retail Environments*

Localised commercial landscapes and large-scale retail exposures shape food choices, according to the qualitative synthesis. This theme made up 28.57% of the dataset. It covers two parts: 1) Structural Bifurcation and Centrality of Traditional Wet Markets; and 2) Proliferation of Ubiquitous Convenience Store Landscapes.

#### Subtheme 4.1: Bifurcation and Centrality of Traditional Wet Markets

The qualitative synthesis contained 14.29% of this subtheme. Line-by-line coding shows that Asian food retail dualism is structural, not transient. Traditional open-air markets are socially and financially central due to profound community integration and rooted socio-economic networks that survive corporate growth (Banwell et al., 2012). "The fresh market is not just a place to buy food; it is where our community interacts daily. We have bought from the same family stalls for decades, and this social bond creates a sense of safety and trust that corporate retail environments cannot replicate." (Banwell et al., 2012)

#### Subtheme 4.2: Proliferation of Ubiquitous Convenience Store Landscapes

The qualitative synthesis contained 14.29% of this subtheme. Line-by-line coding shows that modern convenience shop networks around schools pose serious environmental dangers. Youth are constantly exposed to overly promoted, ultra processed alternatives. Building convenience traps that ignore parental and school nutritional standards (Zhou et al., 2020). "There are three different convenience stores right outside the school gates. As soon as the bell rings, the children run inside to buy sweet drinks and processed snacks because they are brightly coloured, heavily promoted, and easily accessible without any parental oversight." (Zhou et al., 2020)

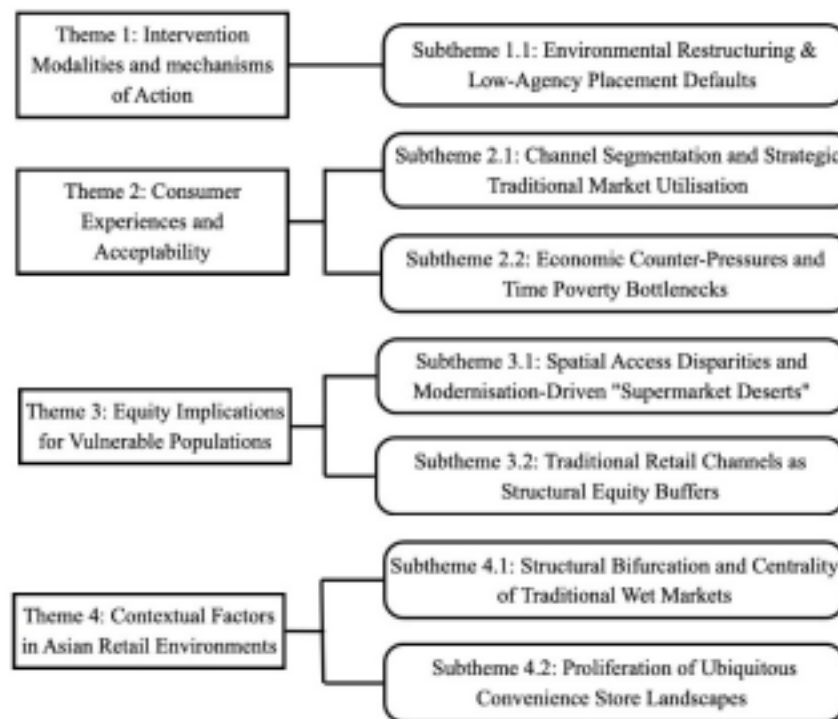


Figure 3. Hierarchical Tree Diagram of Synthesised Meta-Themes and Subthemes

| Synthesised Review Findings                                                                                                                                   | Methodological Limitations* | Coherence                                                            | Adequacy                                                                          | Relevance           | Overall CERQual Confidence | Contributing Primary Studies               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------|----------------------------|--------------------------------------------|
| Finding 1 (Subtheme 1.1): Choice setups utilising environmental restructuring and low-agency placement defaults shift choices without heavy conscious strain. | No serious concerns         | Very minor concerns (highly consistent across institutional cohorts) | Moderate concerns (Data limited to specific institutional/shift-work populations) | No serious concerns | MODERATE                   | Kawabata et al. (2024); Seah et al. (2020) |
| Finding 2 (Subtheme 2.1): Consumers display distinct channel segmentation, using                                                                              | No serious concerns         | No serious concerns (highly coherent across urban contexts)          | No serious concerns (rich, deep descriptive evidence)                             | No serious concerns | HIGH                       | Kelly et al. (2014)                        |

|                                                                                                                                                                         |                                                                   |                     |                                                                    |                     |          |                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|---------------------|--------------------------------------------------------------------|---------------------|----------|---------------------------------------|
| supermarkets for staples but maintaining traditional wet market reliance for fresh produce.                                                                             |                                                                   |                     |                                                                    |                     |          |                                       |
| Finding 3 (Subtheme 2.2):High consumer nutritional intent is consistently overridden by acute economic counter-pressures and time poverty bottlenecks.                  | No serious concerns                                               | No serious concerns | No serious concerns(supported by rich narrative accounts)          | No serious concerns | HIGH     | Colozza (2022)                        |
| Finding 4 (Subtheme 3.1):State-driven retail modernisation projects trigger spatial access disparities, creating structural "supermarket deserts" for low-income women. | No serious concerns                                               | No serious concerns | Minor concerns(restricted to a single large-scale country case)    | No serious concerns | MODERATE | Wertheim-Heck et al. (2019)           |
| Finding 5 (Subtheme 3.2):Traditional retail channels serve as critical structural equity buffers and essential nutritional lifelines for low-income patrons.            | Minor concerns(reporting gaps on researcher-participant dynamics) | No serious concerns | Minor concerns(limited geographical sample size)                   | No serious concerns | MODERATE | Hofman & Trevenen-Jones (2024)        |
| Finding 6 (Subtheme 4.1):Traditional open-air wet markets retain central cultural and financial priority due to entrenched socio-economic networks.                     | Minor concerns(reporting gaps on researcher-participant dynamics) | No serious concerns | Minor concerns(focused heavily on small vendor interactions)       | No serious concerns | MODERATE | Banwell et al. (2012)                 |
| Finding 7 (Subtheme 4.2):High spatial density of convenience store landscapes around schools creates persistent dietary hazards that bypass parental guidance.          | Minor concerns(reporting gaps on researcher-participant dynamics) | No serious concerns | No serious concerns(supported by large qualitative parent cohorts) | No serious concerns | HIGH     | Dai et al. (2022); Zhou et al. (2020) |

**\*Footnotes:** Evaluation criteria are based on the standard GRADE-CERQual (Confidence in the Evidence from Reviews of Qualitative Research) framework. Methodological limitations were assessed using the CASP qualitative appraisal scores detailed in Table No. 2.

### Line-of-Argument Synthesis

Following Noblit and Hare's meta-ethnographic framework, this synthesis uses a line-of-argument technique to explore beyond themes and rebuild an integrated narrative from the nine primary qualitative datasets. Essentially, a country's retail development stage and household socioeconomic constraints dictate the public health efficacy of low-agency choice architecture interventions. This qualitative synthesis has multi-layered behavioral relationships:

- The Structural Environment Baseline: Traditional fresh venues (wet markets) and sophisticated corporate networks (supermarkets and convenience stores) exist together in growing Asian retail landscapes (Banwell et al., 2012; Kelly et al., 2014).
- The Micro-Level Nudge Effect: Microenvironmental changes in formal institutions and corporations. Change point-of-purchase displays or optimise healthy defaults. Use low-agency cognitive pathways to influence customer behavior without conscious strain (Seah et al., 2020; Thaler & Sunstein, 2008).
- The Household Vulnerability Override: Once people leave highly controlled micro-environments, profound socioeconomic restrictions overrule their behavior. Acute household time poverty and systemic financial restrictions interrupt positive nutritional intent in marginalised people, making pure visibility interventions ineffectual (Colozza, 2022).
- The Policy-Driven Access Disparities: Municipal sanitisation programs that phase out informal marketplaces generate "supermarket deserts" that deny low-income customers fresh food. Traditional open-air networks

provide flexible micro-quantities and informal credit lines as structural equity buffers (Hofman & Trevenen-Jones, 2024).

This synthesis concludes that choice architecture interventions fail when they presume uniform cognitive agency without considering socioeconomic realities, family restrictions, and regional policy crossovers. Public health must go beyond micro-nudges to multi-level strategies that preserve informal economic networks. Establish financial and time-saving solutions for marginalised consumers and limit convenience store density near susceptible perimeters.

## Conclusion and Recommendations

This meta-ethnography and qualitative systematic review show choice architecture mechanisms. Low-agency storefront defaults can drive customer choices within organised institutional environments, but their real-world impact on Asian food landscapes is substantially shaped by structural restrictions. The meta-ethnographic synthesis shows that socioeconomic factors often override localised micro-environmental efforts. Low-income consumers are often hampered by systemic factors like acute household time poverty, severe financial constraints, and top-down municipal modernisations. Top-down retail formalisation schemes that abolish informal marketplaces can cut off low-income residents from flexible, low-cost food centers, compromising food security. Traditional fresh wet markets are structural equity barriers, but high-density corporate convenience shop chains near school perimeters pose a dietary concern for youth.

### *Implications for Public Health Policy and Practice*

#### *Public Health Policy*

Food environment treatments must go beyond cognitive agency and choice optimisation. Food policy must enable informal commerce to address systemic issues. Instead of abolishing wet markets, upgrading their sanitary infrastructure and helping low-income households with finances and time.

#### *Spatial Environmental Zoning*

Local governments should restrict spatial zoning around sensitive areas. Lowering the density of harmful retail convenience stores near schools reduces youth ultra-processed food exposure. Thus, strengthening parental oversight and school nutrition.

#### *Clinical and Community Research*

In routine health evaluations, community health researchers and clinical nurses should analyze structural food insecurity and home restrictions. Health professionals should give contextually appropriate dietary guidance rather than nutrition education that presumes universal lifestyle management. It recognises time poverty and social division in real life.

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## Competing Interests Statement

Authors declare no known competing financial interests, institutional links, or personal relationships that could have influenced this article's work, analysis, or findings.

## Data Availability Statement

This article did not create empirical field data; therefore, data sharing is not applicable. The meta-ethnography's text and reference list detail and cite all primary qualitative source texts and characteristics.

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## Appendices

No appendices are attached to this study.