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Factors Influencing the Purchase Decisions of Older Consumers for Healthcare Products in Hanoi: A Proposed Research Model

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Abstract

Vietnam entered the ageing phase of its demographic transition in 2011, and by 2025 people aged 60 and over accounted for 14.5 percent of the national population. Hanoi, with a resident population of more than 8.8 million, hosts one of the largest urban groups of older people in the country, and these consumers have become a visible and fast-growing segment of the market for dietary supplements, functional foods, home health-monitoring devices and other healthcare products. Despite the commercial scale of this segment, the Vietnamese marketing literature still treats older consumers either as an undifferentiated extension of the adult market or as passive recipients of care. This conceptual paper proposes a research model that explains the purchase decisions of older consumers for healthcare products in Hanoi. Drawing on the Theory of Planned Behavior, the Health Belief Model and the consumer-

behavior literature on later-life decision making, the model identifies four antecedents of attitude (health consciousness, perceived product quality and benefits, perceived risk and brand trust) and three direct determinants of the purchase decision (attitude, reference-group influence and purchase accessibility), with perceived price and value entering as a further direct predictor. Attitude is positioned as a mediator, and self-rated health status, living arrangement and income are proposed as moderators that capture the heterogeneity of the older population. The paper formulates ten testable hypotheses, specifies the measurement scales adapted for older respondents, and outlines a survey design using interviewer-assisted questionnaires and partial least squares structural equation modeling. The proposed model offers a basis for empirical work in Vietnam and for comparative studies across ageing societies in Southeast Asia.

Keywords: Older Consumers, Healthcare Products, Purchase Decision, Theory of Planned Behavior, Health Belief Model, Hanoi, Vietnam

1. Introduction

Population ageing is no longer a distant projection for Vietnam. The share of people aged 60 and over passed the 10 percent threshold in 2011, reached 11.9 percent in the 2019 census, and climbed to 14.5 percent in 2025, when the country's population stood at 102.3 million (Viet Nam Government Portal, 2026) [33]. The speed of this transition matters as much as its level: Vietnam is expected to move from an "ageing" to an "aged" society within roughly two decades, far faster than the industrialised economies that went through the same shift in the twentieth century (Minagawa & Vu, 2021) [19]. Hanoi illustrates the trend at the urban scale. The capital had close to 960 thousand residents aged 60 and over as early as 2016, or 12.7 percent of its population at that time, and its total population had grown to more than 8.8 million by mid-2025 (Vu, 2025) [34]. The municipal government has responded with a dedicated plan to implement the National Strategy on the Elderly to 2035 and with annual targets for periodic health examinations for older residents (Hanoi People's Committee, 2025) [12].

Alongside the demographic shift, a sizeable consumer market has formed around the health needs of this group. Industry estimates value Vietnam's functional food market at about USD 1.8 billion in 2025 and its dietary supplement market at between USD 0.9 and 1.4 billion depending on the scope of the category, with double-digit annual growth forecast through the early 2030s (IMARC, 2025; Ken Research, 2025) [15, 17]. Sales channels have multiplied: pharmacy chains, direct-selling networks, specialised health stores, television shopping and e-commerce platforms all compete for older buyers, and the regulatory framework for health supplements has been tightened in response, including the first national contaminant limits that took effect on 1 August 2025 (Ken Research, 2025) [17]. Older consumers are therefore making purchase decisions in an environment that is both richer in choice and harder to navigate than it was a decade ago.

Yet the academic literature on how older Vietnamese consumers make these decisions is thin. Most published Vietnamese studies on health-related purchasing focus on functional foods or supplements among the general adult population or among young consumers, and they rarely sample people over 60 (Nguyen *et al.*, 2020) [23]. Studies that do address older people are typically descriptive surveys from the public-health field, which document prevalence of supplement use but do not model the decision process. The marketing literature on older consumers from other countries is more developed, but it cannot be transplanted without adjustment. Older consumers in Hanoi live in a distinctive context: a high rate of co-residence with adult children, strong reliance on family and on physicians for health information, limited pension income for many, and rapid but uneven exposure to digital retail channels. A research model that reflects these conditions is needed before meaningful empirical work can be done.

This paper responds to that need. Its purpose is to propose a research model of the factors that influence the purchase decisions of older consumers for healthcare products in Hanoi, to derive testable hypotheses from that model, and to outline a methodology for testing it. The paper is conceptual: it does not report survey data. Its contribution lies in combining three streams of theory (the Theory of Planned Behavior, the Health Belief Model and the consumer-behavior literature on ageing) into a single integrated framework, in adapting that framework to the Vietnamese urban context, and in specifying the measurement and analytical approach in enough detail that the model can be tested in subsequent work.

The remainder of the paper is organised as follows. Section 2 defines the key concepts and reviews the theoretical foundations. Section 3 reviews prior empirical studies and identifies the research gap. Section 4 presents the proposed model and develops the hypotheses. Section 5 outlines the proposed research methodology. Section 6 discusses the expected contributions and implications, and Section 7 concludes with limitations and directions for further research.

2. Conceptual Background

2.1 Older consumers and healthcare products

Vietnamese law defines an older person (người cao tuổi) as a citizen aged 60 or above (National Assembly of Vietnam, 2009) [21]. This paper adopts the same threshold, which also matches the cut-off used in national statistics and in most Asian studies of later-life consumption. The group is far from homogeneous. Gerontologists commonly distinguish the “young-old” (60 to 69), the “old-old” (70 to 79) and the “oldest-old” (80 and above), and these sub-groups differ sharply in health, income, mobility and dependence on others. Moschis (2012) [20] argues that chronological age is in fact a weak predictor of consumer behavior in later life; what matters more are life events and circumstances such as retirement, widowhood, the onset of chronic illness and changes in living arrangement. This insight shapes the moderating variables proposed later in this paper.

The term “healthcare products” (sản phẩm chăm sóc sức khỏe) is used here to denote goods purchased by consumers with the primary purpose of maintaining, protecting or improving health, excluding prescription medicines and medical services delivered by professionals. In the Vietnamese market the category covers four main product

groups: (a) dietary supplements and health supplements in the sense of Decree 15/2018/ND-CP, including vitamins, minerals and herbal preparations; (b) functional foods and beverages, such as fortified milk powders marketed to older adults; (c) over-the-counter health products that do not require a prescription; and (d) home health-monitoring and support devices, such as blood-pressure monitors, glucometers, massage equipment and mobility aids. These product groups share several properties that make them an analytically coherent category. They are credence goods whose benefits are hard to verify even after use, they are purchased repeatedly over long periods, they carry a perceived risk to health if misused, and they are heavily promoted through channels that older consumers find persuasive, including television and personal selling.

2.2 Theory of Planned Behavior

The Theory of Planned Behavior (TPB) extends the earlier Theory of Reasoned Action by adding perceived behavioral control to attitude and subjective norm as predictors of behavioral intention, which in turn predicts behavior (Fishbein & Ajzen, 1975; Ajzen, 1991) [8, 1]. Attitude reflects the individual’s overall favorable or unfavorable evaluation of performing the behavior. Subjective norm captures perceived social pressure from important referents. Perceived behavioral control refers to the perceived ease or difficulty of performing the behavior, which depends on resources, opportunities and skills. TPB has been applied extensively to food choice and to the purchase of functional foods and supplements, and meta-analytic evidence supports its predictive validity in these domains (Urala & Lähteenmäki, 2004; Verbeke, 2005) [31, 32].

The theory is especially useful for older consumers because all three of its constructs map onto recognisable features of later-life purchasing. Attitudes toward healthcare products among older people are often strongly held and resistant to change; subjective norms are powerful because of the reliance on family members and health professionals; and perceived behavioral control is salient because mobility, income and digital literacy constrain what older consumers can actually buy. Qualitative work with older supplement users in Bangkok found that their consumption patterns aligned closely with these three constructs, with advice from friends and television exerting a strong influence and high price being read as a signal of quality (Ngamyinyod *et al.*, 2024) [22]. The present model retains the TPB structure but unpacks each construct into more specific marketing variables.

2.3 Health Belief Model

The Health Belief Model (HBM) was developed in public health to explain why people take, or fail to take, preventive health actions (Rosenstock, 1974) [26]. Its core constructs are perceived susceptibility to a health problem, perceived severity of that problem, perceived benefits of the preventive action, perceived barriers to taking it, cues to action and, in later versions, self-efficacy. Marketing scholars have borrowed the HBM to explain preventive health consumption, and have shown that health consciousness and perceived benefits of a product are strong antecedents of attitudes toward health-related purchases (Gould, 1988; Jayanti & Burns, 1998) [10, 16].

For the present model, the HBM contributes three ideas. First, health consciousness, understood as a general

disposition to attend to one's health and to act on that concern, is a stable trait-like variable that should influence attitudes toward healthcare products regardless of the specific product. Second, perceived benefits and perceived barriers can be translated into the marketing constructs of perceived product quality and benefits on the one hand and perceived risk on the other. Third, cues to action, which in the HBM include advice from physicians and messages in the media, correspond to the reference-group influences treated as a form of subjective norm in TPB. The two theories are therefore complementary rather than competing, and the model draws on both.

2.4 Consumer behavior in later life

A distinct body of research examines how ageing changes the way consumers process information and make decisions. Cognitive ageing reduces processing speed and working memory, so older consumers rely more on heuristics, prior experience and trusted brands and less on extensive comparison of alternatives (Yoon *et al.*, 2009) [36]. Lambert-Pandraud and Laurent (2010) [18] show that older consumers prefer long-established brands, partly through attachment and partly through declining innovativeness. Socioemotional selectivity theory adds that as perceived time horizons shrink, people give more weight to emotionally meaningful goals and to relationships, which raises the influence of close family members on decisions (Carstensen *et al.*, 1999) [4]. Perceived risk is also elevated in later life, especially for products that affect health, and older consumers respond to risk by seeking reassurance from brand reputation, from professionals and from personal recommendation (Stone & Grønhaug, 1993) [29].

Two further constructs from the broader consumer-behavior literature complete the picture. Perceived value, defined as the consumer's overall assessment of the utility of a product based on what is received and what is given (Zeithaml, 1988) [37], is central to a segment whose incomes are often fixed and limited. Price is read not only as a sacrifice but also as a quality cue (Dodds *et al.*, 1991) [7], and older consumers tend to rely on this cue more heavily than younger ones. Reference-group influence, which Bearden and Etzel (1982) [2] distinguish into informational, utilitarian

and value-expressive forms, operates for older consumers mainly through family and health professionals rather than through peers or media celebrities.

3. Prior Empirical Research and the Research Gap

Empirical studies on the purchase of healthcare products by older consumers have accumulated mainly in East and Southeast Asia over the past decade. In Thailand, Wongwanit (2019) [35] surveyed older consumers of supplementary foods and found perceived benefit, word of mouth and health consciousness to be the strongest correlates of purchase intention. A later study in Bangkok and its metropolitan area, based on 400 consumers aged 60 and above, confirmed that attitude toward supplement consumption and ease of purchase were significantly related to behavioral intention, and that family members were the most influential referents (Boonyathawornchai & Thepanon, 2020) [3]. Ngamyinyod *et al.* (2024) [22], using in-depth interviews with 21 older supplement users, identified several problematic patterns, including prolonged use of the same product without review, substitution of supplements for prescribed medicines and reliance on friends and television for product information. In Korea, a 2024 study of senior consumers extended TPB with trust and found that trust in the product and in the seller added explanatory power beyond the three core TPB constructs (Oh, 2024) [24].

In Vietnam, Nguyen *et al.* (2020) [23] tested a TPB-based model of functional yogurt purchase intention and found attitude, subjective norm, perceived behavioral control and health consciousness to be significant, but their sample was drawn from the general adult population rather than from older people. Other Vietnamese studies on functional foods and supplements share this limitation, and the few that include respondents over 60 do not analyse them separately. Public-health surveys of older Vietnamese provide useful descriptive context, such as the high proportion who continue to work into their sixties and the limited access to geriatric care, but they do not address purchasing behavior (Minagawa & Vu, 2021) [19].

Table 1 summarises the studies most directly relevant to the proposed model.

Table 1: Prior empirical studies on healthcare-product purchasing by older and general consumers in Asia

Study	Context and sample	Theoretical base	Main findings relevant to this model
Wongwanit (2019) [35]	Thailand; older consumers of supplementary foods; quantitative survey	Purchase intention framework	Perceived benefit, word of mouth and health consciousness most strongly related to intention to buy
Boonyathawornchai & Thepanon (2020) [3]	Bangkok and metropolitan area; 400 consumers aged 60+	TPB	Attitude and ease of purchase related to consumption intention; family members the most influential referents; delivery arrangements matter
Nguyen <i>et al.</i> (2020) [23]	Vietnam; general adult consumers of functional yogurt	TPB extended with health consciousness	Attitude, subjective norm, perceived behavioral control and health consciousness all significant; no separate analysis of older respondents
Ngamyinyod <i>et al.</i> (2024) [22]	Bangkok; 21 older supplement users; in-depth interviews	TPB (qualitative)	Long-term use of the same products, reliance on friends and television for information, high price read as a quality signal, supplements sometimes substituted for medicines
Oh (2024) [24]	South Korea; senior consumers of health supplements	TPB extended with trust	Trust adds explanatory power beyond attitude, subjective norm and perceived behavioral control
Zhu & Li (2017) [39]	Hong Kong; 240 regular supplement users	TPB	Attitude the most salient predictor and a partial mediator of subjective norm and perceived behavioral control; years of use moderate the effects

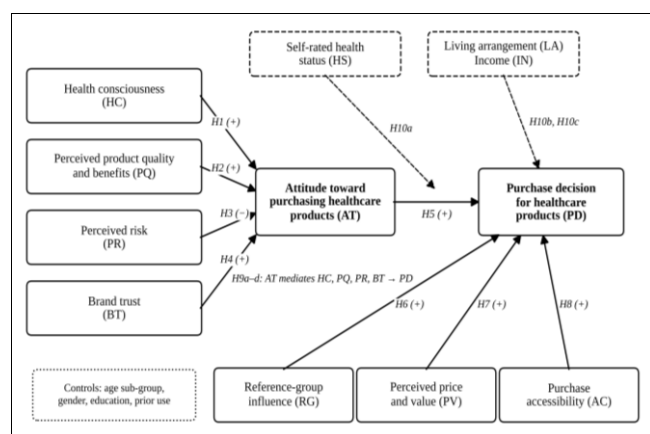
Source: Compiled by the author from the cited studies.

Three gaps follow from this review. The first is a population gap: the determinants of healthcare-product purchasing have not been modeled for older consumers in a Vietnamese city, even though this group is the fastest-growing part of the market. The second is a theoretical gap: existing studies apply TPB in its generic form and do not integrate the health-specific constructs of the HBM or the ageing-specific insights of the later-life consumer literature, which leaves the “why” behind attitudes and norms unexplained. The third is a methodological gap: most prior work measures purchase intention rather than purchase decision, uses self-administered questionnaires that are poorly suited to older respondents, and does not examine the moderating role of health status, living arrangement or income, which are precisely the variables that make the older population heterogeneous. The model proposed below is designed to address all three gaps.

4. Proposed Research Model and Hypotheses

4.1 Overview of the model

The proposed model is shown in Fig 1. Its dependent variable is the purchase decision for healthcare products, defined as the older consumer's actual choice to buy, including the frequency and regularity of purchase over the past twelve months. Attitude toward purchasing healthcare products is the central mediating construct. Four antecedents are hypothesised to shape attitude: health consciousness, perceived product quality and benefits, perceived risk and brand trust. Three further constructs are hypothesised to influence the purchase decision directly: reference-group influence (the subjective-norm component of TPB), purchase accessibility (the perceived-behavioral-control component) and perceived price and value. Self-rated health status, living arrangement and income are proposed as moderators, and age sub-group, gender, education and prior use are included as control variables.



Source: Proposed by the author

Fig 1: Proposed research model of factors influencing the purchase decisions of older consumers for healthcare products in Hanoi

The model deliberately separates the antecedents of attitude from the direct determinants of the decision. This structure follows TPB, in which attitude, subjective norm and perceived behavioral control operate in parallel, but it enriches the attitude construct with HBM-derived antecedents so that the model can explain where favorable or unfavorable attitudes come from. The structure also allows the mediating role of attitude to be tested explicitly, which most previous studies have not done.

4.2 Antecedents of attitude

Health Consciousness: Health consciousness refers to the degree to which a person is attentive to their health, integrates health concerns into daily life and is motivated to take preventive action (Gould, 1988; Jayanti & Burns, 1998) [10, 16]. Older people vary widely on this dimension: some actively monitor their health and seek out products that may protect it, while others attend to health only when illness forces them to. Health-conscious consumers are more receptive to the preventive promise of supplements, functional foods and monitoring devices, and they evaluate these products more favorably. Studies of functional food acceptance confirm that health consciousness is one of the most consistent predictors of a favorable attitude (Verbeke, 2005; Nguyen *et al.*, 2020) [32, 23], and the same relationship has been reported for older consumers in Thailand (Wongwanit, 2019) [35]. Hence:

H1. Health consciousness has a positive effect on older consumers' attitude toward purchasing healthcare products.

Perceived product quality and benefits: Perceived quality is the consumer's judgment of a product's overall excellence or superiority (Zeithaml, 1988) [37]. For healthcare products, this judgment is bound up with the perceived health benefits the product delivers: whether it is believed to strengthen bones, improve sleep, control blood pressure or otherwise address a felt need. Because healthcare products are credence goods, perceived quality rests on cues such as ingredients, country of origin, certification, packaging and the claims made in promotion, rather than on direct verification. The HBM treats perceived benefits as a core driver of preventive health action, and functional food research shows that belief in a product's efficacy is a prerequisite for a favorable attitude (Urala & Lähtenmäki, 2004; Siró *et al.*, 2008) [31, 28]. Hence:

H2. Perceived product quality and benefits have a positive effect on older consumers' attitude toward purchasing healthcare products.

Perceived risk: Perceived risk is the consumer's subjective expectation of loss associated with a purchase, and for healthcare products it has several dimensions: physical risk (side effects or interactions with medicines), financial risk (wasting money on an ineffective product), performance risk (the product failing to deliver its promised benefit) and, in the Vietnamese market, the risk of counterfeit or unregistered products (Stone & Grønhaug, 1993) [29]. Older consumers are particularly sensitive to physical risk because many take multiple prescription medicines, and they are more exposed to financial risk because of fixed incomes. Elevated perceived risk reduces the favorability of attitudes toward the product category as a whole. Hence:

H3. Perceived risk has a negative effect on older consumers' attitude toward purchasing healthcare products.

Brand trust: Brand trust is the consumer's willingness to rely on the brand's ability to perform its stated function (Chaudhuri & Holbrook, 2001) [5]. It plays a compensating role in markets where quality cannot be verified: a trusted brand substitutes for the consumer's own ability to evaluate the product. The later-life consumer literature shows that older consumers rely more on familiar and long-established brands as a way of simplifying decisions and reducing risk (Lambert-Pandraud & Laurent, 2010) [18], and the Korean study of senior supplement buyers found trust to be a significant addition to the TPB framework (Oh, 2024) [24]. In Vietnam, brand trust for healthcare products is closely

linked to the reputation of the manufacturer, the presence of the product in pharmacies and hospitals, and the brand's longevity in the market. Hence:

H4. Brand trust has a positive effect on older consumers' attitude toward purchasing healthcare products.

4.3 Direct determinants of the purchase decision

Attitude: Within TPB, attitude is the strongest and most consistent predictor of intention and behavior (Ajzen, 1991) ^[1], and empirical studies of supplement purchasing confirm that attitude is the most salient factor and also mediates the effects of other predictors (Zhu & Li, 2017; Nguyen *et al.*, 2020) ^[39, 23]. Older consumers with a favorable attitude toward healthcare products will be more likely to buy them, to buy them regularly and to allocate a larger share of their spending to them. Hence:

H5. Attitude toward purchasing healthcare products has a positive effect on older consumers' purchase decision.

Reference-group influence: Reference-group influence corresponds to the subjective-norm construct of TPB but is specified here in terms of the referents that matter most for older consumers in Hanoi: adult children and spouses, physicians and pharmacists, and peers in the same age group, including members of local associations of the elderly. The influence of family is reinforced by the Vietnamese pattern of co-residence and by the fact that adult children often pay for, or physically purchase, products on behalf of their parents. The influence of health professionals is reinforced by the trust older Vietnamese place in the medical profession. Studies in Thailand and in Vietnam consistently find subjective norm to be significant, with family members the most influential referents (Nguyen *et al.*, 2020; Boonyathawornchai & Thepanon, 2020; Ngamyinyod *et al.*, 2024) ^[23, 3, 22]. Hence:

H6. Reference-group influence has a positive effect on older consumers' purchase decision for healthcare products.

Perceived price and value: Price enters the decision in two ways. As a sacrifice, a higher price reduces the likelihood of purchase, particularly for consumers on limited pensions. As a quality signal, a higher price can raise perceived quality and therefore purchase likelihood (Dodds *et al.*, 1991) ^[7], and qualitative evidence suggests older Asian consumers do read high prices as a sign of superior quality (Ngamyinyod *et al.*, 2024) ^[22]. The construct used in this model is therefore perceived price and value, following Zeithaml (1988) ^[37] and Sweeney and Soutar (2001) ^[30]: the consumer's judgment that the product is worth what it costs, taking both the benefit received and the money given into account. When older consumers judge a product to offer good value, they are more likely to buy it. Hence:

H7. Perceived price and value have a positive effect on older consumers' purchase decision for healthcare products.

Purchase accessibility: Purchase accessibility corresponds to perceived behavioral control in TPB and captures the practical ease with which an older consumer can obtain the product: proximity of pharmacies and stores, availability of home delivery, the ability to order by telephone or through a family member, clarity of product information and labeling, and the availability of staff who can explain the product. Mobility limitations, reduced vision and limited digital literacy make these factors far more decisive for older consumers than for younger ones. The Bangkok survey found that ease of purchase and suitable delivery arrangements were significantly related to supplement

consumption among people over 60 (Boonyathawornchai & Thepanon, 2020) ^[3]. Hence:

H8. Purchase accessibility has a positive effect on older consumers' purchase decision for healthcare products.

4.4 Mediation

The model proposes that the four antecedents in Section 4.2 influence the purchase decision through attitude. This structure is consistent with the TPB logic that beliefs shape attitudes, which in turn shape behavior, and with evidence that attitude partially mediates the effects of other predictors on supplement purchase intention (Zhu & Li, 2017) ^[39]. Testing mediation explicitly is important because it indicates whether marketers and policy makers should aim at the underlying beliefs (health consciousness, perceived quality, perceived risk, brand trust) or at attitudes directly. Hence:

H9. Attitude mediates the effects of health consciousness (H9a), perceived product quality and benefits (H9b), perceived risk (H9c) and brand trust (H9d) on older consumers' purchase decision for healthcare products.

4.5 Moderators

Following Moschis (2012) ^[20], the model treats the older population as heterogeneous and proposes three moderators that capture the main sources of that heterogeneity.

Self-rated health status: Older consumers who rate their health as poor or who live with chronic conditions have a more immediate and concrete motive to act on favorable attitudes, so the link between attitude and purchase decision should be stronger for them. Conversely, those in good health may hold favorable attitudes without translating them into regular purchases. Hence:

H10a. Self-rated health status moderates the relationship between attitude and purchase decision, such that the relationship is stronger for older consumers in poorer health.

Living arrangement: Older consumers who co-reside with adult children are exposed to more frequent and more direct family influence over purchases, and their children often act as purchasing agents. Those who live alone or only with a spouse rely more on their own judgment and on professionals. Hence:

H10b. Living arrangement moderates the relationship between reference-group influence and purchase decision, such that the relationship is stronger for older consumers who co-reside with adult children.

Income: For older consumers with low income, price acts primarily as a constraint and value judgments weigh heavily on the decision. For those with higher income, price is less binding and the value construct loses some of its force. Hence:

H10c. Income moderates the relationship between perceived price and value and purchase decision, such that the relationship is stronger for older consumers with lower income.

4.6 Control variables

Age sub-group (60 to 69, 70 to 79, 80 and above), gender, educational attainment and prior use of healthcare products are included as controls. Prior use deserves particular attention because habit is a strong predictor of repeated purchase of supplements and because older consumers show a marked tendency to continue with the same products over long periods (Ngamyinyod *et al.*, 2024) ^[22].

Table 2 summarises the hypothesised relationships.

Table 2: Summary of proposed hypotheses

Hypothesis	Relationship	Expected sign	Theoretical basis
H1	Health consciousness → Attitude	+	HBM; Gould (1988) ^[10] ; Jayanti & Burns (1998) ^[16]
H2	Perceived product quality and benefits → Attitude	+	HBM; Zeithaml (1988) ^[37] ; Urala & Lähteenmäki (2004) ^[31]
H3	Perceived risk → Attitude	–	Stone & Grønhaug (1993) ^[29] ; HBM (perceived barriers)
H4	Brand trust → Attitude	+	Chaudhuri & Holbrook (2001) ^[5] ; Lambert-Pandraud & Laurent (2010) ^[18]
H5	Attitude → Purchase decision	+	TPB; Ajzen (1991) ^[1]
H6	Reference-group influence → Purchase decision	+	TPB (subjective norm); Bearden & Etzel (1982) ^[2]
H7	Perceived price and value → Purchase decision	+	Zeithaml (1988) ^[37] ; Dodds <i>et al.</i> (1991) ^[7]
H8	Purchase accessibility → Purchase decision	+	TPB (perceived behavioral control)
H9a–d	Attitude mediates H1–H4 effects on Purchase decision	mediation	TPB; Zhu & Li (2012) ^[39]
H10a	Self-rated health moderates Attitude → Purchase decision	stronger in poorer health	Moschis (2012) ^[20]
H10b	Living arrangement moderates Reference group → Purchase decision	stronger with co-residence	Carstensen <i>et al.</i> (1999) ^[4] ; Moschis (2012) ^[20]
H10c	Income moderates Price and value → Purchase decision	stronger at lower income	Zeithaml (1988) ^[37]

Source: Compiled by the author.

5. Proposed Research Methodology

5.1 Research design

The model is designed to be tested with a cross-sectional survey of older consumers in Hanoi, preceded by a qualitative phase to adapt the measurement scales. The qualitative phase would consist of two focus groups with older consumers (one with people aged 60 to 69 and one with people aged 70 and above) and six to eight expert interviews with pharmacists, physicians working in geriatric departments and marketing managers of healthcare-product companies. The purpose of this phase is to confirm the relevance of the constructs, to identify the specific referents, risks and accessibility factors that matter in Hanoi, and to check that the wording of the scale items is comprehensible to older respondents.

5.2 Measurement

All constructs will be measured with multi-item reflective scales adapted from established sources, as shown in Table 3; the full item wording in English and Vietnamese is given in Appendix A. Items will be rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). A

five-point rather than seven-point scale is recommended for older respondents because it reduces cognitive load and improves response consistency. The purchase decision construct combines evaluative items with behavioral self-report items on purchase frequency and spending over the previous twelve months, which brings the dependent variable closer to actual behavior than the intention measures used in most prior work.

Table 3: Proposed measurement scales

Construct	Code	Items	Adapted from	Sample item
Health consciousness	HC	5	Gould (1988) ^[10] ; Jayanti & Burns (1998) ^[16]	I pay close attention to changes in my health
Perceived product quality and benefits	PQ	5	Zeithaml (1988) ^[37] ; Urala & Lähteenmäki (2004) ^[31]	The healthcare products I consider are effective for my health problems
Perceived risk	PR	4	Stone & Grønhaug (1993) ^[29]	I worry that healthcare products may interact with the medicines I take
Brand trust	BT	4	Chaudhuri & Holbrook (2001) ^[5]	I trust well-known brands of healthcare products to deliver what they promise
Attitude toward purchase	AT	4	Ajzen (1991) ^[1] ; Nguyen <i>et al.</i> (2020) ^[23]	Buying healthcare products is a wise thing for me to do
Reference-group influence	RG	5	Bearden & Etzel (1982) ^[2] ; Ajzen (1991) ^[1]	My children's opinions influence which healthcare products I buy
Perceived price and value	PV	4	Zeithaml (1988) ^[37] ; Sweeney & Soutar (2001) ^[30]	The healthcare products I buy are worth the money
Purchase accessibility	AC	5	Ajzen (1991) ^[1] ; adapted for older consumers	It is easy for me to obtain the healthcare products I need
Purchase decision	PD	4	Adapted from prior TPB studies; behavioral self-report	I regularly buy healthcare products for myself
Self-rated health status	HS	1	Standard single-item self-rated health	In general, how would you rate your health?
Living arrangement	LA	1	Categorical	With whom do you currently live?
Income	IN	1	Categorical (monthly personal income bands)	What is your average monthly income?

Source: Compiled by the author.

Scales will be translated into Vietnamese and back-translated by independent bilingual researchers, then pre-tested with 30 older respondents to assess clarity, reliability and the time needed to complete the questionnaire.

5.3 Sampling and data collection

The target population is residents of Hanoi aged 60 and above who have purchased at least one healthcare product for their own use in the past twelve months. Because no sampling frame exists for this population, a quota sampling approach stratified by area type and age sub-group is proposed. Following the reorganisation of local government that took effect on 1 July 2025, Hanoi is administered

through ward- and commune-level units that span the historical inner city, the urbanised districts and the peri-urban and rural communes; the sample would include units from each of these three area types to reflect differences in income, retail access and living arrangement. Within each area, respondents would be recruited through associations of the elderly, ward health stations and pharmacies, with quotas set for the three age sub-groups.

The minimum sample size for PLS-SEM with the proposed number of predictors would be around 200, but a target of 350 to 400 valid responses is recommended to allow multi-group analysis across the moderator categories and to accommodate the higher rate of incomplete responses typical of older samples (Hair *et al.*, 2022) ^[11]. Data would be collected through interviewer-assisted face-to-face questionnaires rather than self-completion or online surveys, with large-print instruments and trained interviewers, because this method is more reliable for older respondents and reduces the exclusion of those with limited literacy or vision. Procedural remedies for common method bias, including assurance of anonymity, psychological separation of predictor and criterion items and varied response formats, would be applied, and Harman's single-factor test and a marker-variable test would be used as statistical checks (Podsakoff *et al.*, 2003) ^[25].

5.4 Data Analysis

Partial least squares structural equation modeling (PLS-SEM) is proposed as the primary analytical technique because the model is predictive in orientation, includes both mediation and moderation, and may face non-normal data from a quota sample (Hair *et al.*, 2022) ^[11]. The measurement model would be assessed for indicator reliability, internal consistency (Cronbach's alpha and composite reliability), convergent validity (average variance extracted) and discriminant validity (Fornell–Larcker criterion and the heterotrait–monotrait ratio). The structural model would then be assessed through path coefficients and their bootstrapped significance, coefficients of determination, effect sizes and predictive relevance. Mediation (H9) would be tested using the bootstrapped indirect effects, and moderation (H10) would be tested through interaction terms for the continuous moderator and through multi-group analysis with permutation tests for the categorical moderators. Where the sample permits, the results would also be examined separately for the three age sub-groups to check the stability of the model across the older population.

Table 4 lists the assessment criteria and the thresholds that would be applied.

Table 4: Proposed criteria for assessing the measurement and structural models

Stage	Criterion	Threshold applied	Reference
Measurement model	Outer loadings	≥ 0.708 (items between 0.40 and 0.70 retained only if deletion does not raise reliability)	Hair <i>et al.</i> (2022) ^[11]
Measurement model	Cronbach's alpha and composite reliability	≥ 0.70 and ≤ 0.95	Hair <i>et al.</i> (2022) ^[11]
Measurement model	Average variance extracted (AVE)	≥ 0.50	Fornell & Larcker (1981) ^[9]
Measurement model	Discriminant validity	Square root of AVE greater than inter-construct correlations; HTMT < 0.85	Fornell & Larcker (1981) ^[9] ; Henseler <i>et al.</i> (2015) ^[13]
Structural model	Collinearity	Inner VIF < 3	Hair <i>et al.</i> (2022) ^[11]
Structural model	Path coefficients	Significant at $p < 0.05$ with 5,000 bootstrap resamples; bias-corrected confidence intervals	Hair <i>et al.</i> (2022) ^[11]
Structural model	Explanatory power	R^2 for attitude and purchase decision reported with adjusted values; f^2 of 0.02, 0.15 and 0.35 read as small, medium and large	Cohen (1988) ^[6]
Structural model	Predictive relevance	$Q^2 > 0$ (blindfolding) and PLSpredict comparison with a linear benchmark	Shmueli <i>et al.</i> (2019) ^[27]
Mediation	Indirect effects	Bootstrapped indirect effect significant; type of mediation classified as full, partial or none	Zhao <i>et al.</i> (2010) ^[38]
Moderation	Interaction and multi-group analysis	Interaction term significant for HS; permutation-based MGA for LA and IN after measurement invariance (MICOM)	Henseler <i>et al.</i> (2016) ^[14]

Source: Compiled by the author.

6. Expected Contributions and Implications

6.1 Theoretical contributions

The model makes three theoretical contributions. It integrates TPB with the HBM and the later-life consumer literature into a single framework in which the antecedents of attitude are specified rather than assumed, which moves the explanation one step back from the “attitude predicts behavior” result that most prior studies stop at. It introduces moderators that reflect the heterogeneity of the older population, following the argument that circumstances rather than chronological age drive later-life consumption. And it specifies the dependent variable as purchase decision with a behavioral component, rather than as intention, which addresses a long-standing concern about the intention-behavior gap in TPB research.

6.2 Managerial implications

If the hypotheses are supported, several implications for companies marketing healthcare products to older consumers in Hanoi would follow. Communication should address the beliefs behind attitudes rather than attitudes alone: it should supply credible evidence of product benefits, reduce perceived physical and financial risk through clear information about interactions and through transparent pricing, and build brand trust through consistent presence in pharmacies and endorsement by health professionals. Distribution should be designed for accessibility, with home delivery, telephone ordering, large-print labeling and in-store staff trained to explain products to older customers. Promotion should recognise that adult children are often the real purchasing agents and should

reach them as well as the older consumer. Pricing should be set with attention to value perception among a segment with limited income, and should avoid the practice of using high prices purely as a quality signal.

6.3 Policy implications

The model also has implications for public policy. The finding that older consumers rely heavily on family members, friends and television for product information, if confirmed in Hanoi, would support stronger regulation of healthcare-product advertising directed at older audiences and the development of accessible, trusted sources of information through ward health stations and associations of the elderly. Evidence on perceived risk would help the authorities to target enforcement against counterfeit and unregistered products, which are a particular hazard for older consumers taking multiple medicines. More broadly, understanding what drives healthcare-product purchasing among older people would support the health-promotion objectives of the National Strategy on the Elderly to 2035 by distinguishing between purchases that genuinely improve health and purchases driven by anxiety or persuasion.

7. Conclusion, Limitations and Future Research

This paper has proposed a research model of the factors influencing the purchase decisions of older consumers for healthcare products in Hanoi. The model combines the Theory of Planned Behavior with the Health Belief Model and with insights from research on consumer behavior in later life. It identifies health consciousness, perceived product quality and benefits, perceived risk and brand trust as antecedents of attitude; attitude, reference-group influence, perceived price and value, and purchase accessibility as direct determinants of the purchase decision; attitude as a mediator; and self-rated health status, living

arrangement and income as moderators. Ten hypotheses have been developed, and a survey design using interviewer-assisted questionnaires and PLS-SEM has been outlined.

As a conceptual paper, this study has obvious limitations. The hypotheses remain to be tested, and the relative importance of the constructs may prove different from what the literature suggests. The proposed cross-sectional design will identify relationships but cannot establish causality; a longitudinal or experimental follow-up would be needed for that purpose. The scope is limited to one city, and the findings may not transfer to rural areas or to other Vietnamese cities with different retail structures and family patterns. The healthcare-product category is broad, and future work may need to distinguish between product groups, since the determinants of buying a blood-pressure monitor may differ from those of buying a herbal supplement.

Several directions for future research follow. The model could be tested comparatively in Hanoi and Ho Chi Minh City, or across Southeast Asian cities at similar stages of population ageing, to examine the stability of the relationships across contexts. The role of digital channels, which this model treats only as one component of accessibility, deserves separate study as older Vietnamese consumers move online. And the role of adult children as purchasing agents could be examined directly by surveying parent-child dyads, which would clarify whose attitudes and whose decisions are actually being measured when older consumers buy healthcare products.

Appendix A. Proposed questionnaire items

All items are rated from 1 (strongly disagree) to 5 (strongly agree) unless indicated otherwise. The Vietnamese wording is a working translation to be refined through back-translation and the pre-test described in Section 5.2.

Table A1: Measurement items for the proposed constructs

Code	Item (English)	Item (Vietnamese)
HC1	I pay close attention to changes in my health.	Tôi rất chú ý đến những thay đổi về sức khỏe của mình.
HC2	I think about my health often.	Tôi thường xuyên nghĩ về sức khỏe của mình.
HC3	I take responsibility for the state of my own health.	Tôi tự thấy mình có trách nhiệm với tình trạng sức khỏe của bản thân.
HC4	I try to prevent health problems before they occur.	Tôi cố gắng phòng ngừa các vấn đề sức khỏe trước khi chúng xảy ra.
HC5	I am willing to spend time and money to protect my health.	Tôi sẵn sàng dành thời gian và tiền bạc để bảo vệ sức khỏe.
PQ1	The healthcare products I consider are effective for my health problems.	Những sản phẩm chăm sóc sức khỏe tôi cân nhắc mua có hiệu quả với các vấn đề sức khỏe của tôi.
PQ2	These products are made from reliable, clearly labeled ingredients.	Các sản phẩm này được làm từ thành phần đáng tin cậy, ghi nhãn rõ ràng.
PQ3	These products meet the quality standards I expect.	Các sản phẩm này đạt tiêu chuẩn chất lượng mà tôi mong đợi.
PQ4	Using these products helps me maintain or improve my health.	Dùng các sản phẩm này giúp tôi duy trì hoặc cải thiện sức khỏe.
PQ5	These products provide benefits that I can feel after use.	Các sản phẩm này mang lại lợi ích mà tôi cảm nhận được sau khi dùng.
PR1	I worry that healthcare products may interact with the medicines I take.	Tôi lo rằng sản phẩm chăm sóc sức khỏe có thể tương tác với thuốc tôi đang dùng.
PR2	I worry that these products may have side effects on my body.	Tôi lo rằng các sản phẩm này có thể gây tác dụng phụ cho cơ thể.
PR3	I worry about wasting money on products that do not work.	Tôi lo lãng phí tiền vào những sản phẩm không có tác dụng.
PR4	I worry about buying counterfeit or unregistered products.	Tôi lo mua phải hàng giả hoặc sản phẩm chưa được cấp phép.
BT1	I trust well-known brands of healthcare products to deliver what they promise.	Tôi tin các thương hiệu sản phẩm chăm sóc sức khỏe nổi tiếng sẽ làm được điều họ cam kết.
BT2	I feel safe using products from brands that have been on the market for a long time.	Tôi cảm thấy yên tâm khi dùng sản phẩm của những thương hiệu đã có mặt lâu năm trên thị trường.
BT3	I trust brands that are sold in pharmacies and recommended by health professionals.	Tôi tin những thương hiệu được bán ở nhà thuốc và được nhân viên y tế giới thiệu.
BT4	I prefer to keep buying the brand I already know rather than switch to a new one.	Tôi thích tiếp tục mua thương hiệu mình đã biết hơn là chuyển sang thương hiệu mới.
AT1	Buying healthcare products is a wise thing for me to do.	Mua sản phẩm chăm sóc sức khỏe là việc làm khôn ngoan đối với tôi.
AT2	Buying healthcare products is beneficial for me.	Mua sản phẩm chăm sóc sức khỏe có lợi cho tôi.

AT3	I feel positive about buying healthcare products.	Tôi có cảm nhận tích cực về việc mua sản phẩm chăm sóc sức khỏe.
AT4	Spending money on healthcare products is a good use of my money.	Chi tiền cho sản phẩm chăm sóc sức khỏe là cách dùng tiền hợp lý của tôi.
RG1	My children's opinions influence which healthcare products I buy.	Ý kiến của con cái ảnh hưởng đến việc tôi mua sản phẩm chăm sóc sức khỏe nào.
RG2	My spouse or other family members encourage me to buy healthcare products.	Vợ/chồng hoặc người thân khuyến khích tôi mua sản phẩm chăm sóc sức khỏe.
RG3	I follow the advice of doctors or pharmacists when choosing healthcare products.	Tôi làm theo lời khuyên của bác sĩ hoặc dược sĩ khi chọn sản phẩm chăm sóc sức khỏe.
RG4	Friends and neighbours of my age share experiences that affect what I buy.	Bạn bè, hàng xóm cùng lứa tuổi chia sẻ kinh nghiệm ảnh hưởng đến việc tôi mua gì.
RG5	People who are important to me think I should use healthcare products.	Những người quan trọng với tôi cho rằng tôi nên dùng sản phẩm chăm sóc sức khỏe.
PV1	The healthcare products I buy are worth the money.	Sản phẩm chăm sóc sức khỏe tôi mua xứng đáng với số tiền bỏ ra.
PV2	The prices of these products are reasonable compared with the benefits they bring.	Giá các sản phẩm này hợp lý so với lợi ích chúng mang lại.
PV3	These products are affordable for someone with my income.	Các sản phẩm này phù hợp với khả năng chi trả của người có thu nhập như tôi.
PV4	Compared with other ways of taking care of my health, these products offer good value.	So với các cách chăm sóc sức khỏe khác, các sản phẩm này đem lại giá trị tốt.
AC1	It is easy for me to obtain the healthcare products I need.	Tôi dễ dàng mua được những sản phẩm chăm sóc sức khỏe mình cần.
AC2	There are pharmacies or stores selling these products near where I live.	Gần nơi tôi ở có nhà thuốc hoặc cửa hàng bán các sản phẩm này.
AC3	I can have these products delivered to my home or ask a family member to buy them.	Tôi có thể được giao hàng tận nhà hoặc nhờ người thân mua các sản phẩm này.
AC4	Product information and labels are clear enough for me to read and understand.	Thông tin và nhãn sản phẩm đủ rõ ràng để tôi đọc và hiểu.
AC5	Store or pharmacy staff explain the products to me when I need it.	Nhân viên cửa hàng hoặc nhà thuốc giải thích về sản phẩm khi tôi cần.
PD1	I regularly buy healthcare products for myself.	Tôi thường xuyên mua sản phẩm chăm sóc sức khỏe cho bản thân.
PD2	In the past twelve months, I have bought healthcare products (number of times: 1-2 / 3-5 / 6-10 / more than 10).	Trong 12 tháng qua, tôi đã mua sản phẩm chăm sóc sức khỏe (số lần: 1-2 / 3-5 / 6-10 / trên 10).
PD3	Healthcare products account for a meaningful share of my monthly spending.	Sản phẩm chăm sóc sức khỏe chiếm một phần đáng kể trong chi tiêu hằng tháng của tôi.
PD4	I will continue to buy healthcare products in the coming year.	Tôi sẽ tiếp tục mua sản phẩm chăm sóc sức khỏe trong năm tới.
HS	In general, how would you rate your health? (very poor / poor / fair / good / very good)	Nhìn chung, ông/bà đánh giá sức khỏe của mình như thế nào? (rất kém / kém / trung bình / tốt / rất tốt)
LA	With whom do you currently live? (alone / with spouse only / with adult children / other)	Hiện nay ông/bà đang sống cùng ai? (một mình / chỉ với vợ hoặc chồng / với con đã trưởng thành / khác)
IN	What is your average monthly personal income? (income bands to be set from the pre-test)	Thu nhập cá nhân bình quân hằng tháng của ông/bà là bao nhiêu? (các mức thu nhập xác định sau khảo sát thử)

Source: Compiled by the author; items adapted from the sources listed in Table 3.

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