

**The role of knowledge on the effect of external influences on the food information search of working female consumers**

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## **DECLARATION**

I, Marli Nel, hereby declare that **“The role of knowledge on the effect of external influences on the food information search of working female consumers”** is my own work and that this dissertation for the purpose of a degree at the North-West University has not previously been submitted to any other higher education institution for the purpose of a degree. The research is entirely the work of the researcher, except for the acknowledged sources.

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*“The beautiful thing about learning is that nobody can take it away from you” – B.B. King*

## **SUMMARY**

Serving as the gatekeepers of their households, women are also part of the labour force. Research indicates that women are still mainly responsible for establishing healthy eating patterns in their households, thus in general responsible for selecting the food products that enter their homes. However, working female consumers often lack the time and sometimes sufficient knowledge to make informed, healthy food decisions.

According to previous research, objective knowledge and subjective knowledge are both strongly associated with self-reported nutritional label use, regardless of health-related attributes. The influence of objective and subjective knowledge in decision making begins to differ when consumers are unfamiliar with a product. Consumers should possess sufficient objective knowledge to make reliable food choices when shopping for groceries. Insufficient objective and subjective knowledge lead to avoidance of the nutritional information on food labels.

The study proposes that having the necessary objective and subjective knowledge regarding healthy foods may assist working female consumers during their pre-purchase information search by using the relevant information on food labels, while external influences may also play a role in their decisions. Research on the importance of external influences during the in-store food label search for high-frequency food products is needed to understand particular influences that working female consumers regard as important during purchasing decisions. Consumers rely on their knowledge and often external aspects such as price, brand and other marketing efforts during their pre-purchase information search. There is, however, a gap in current literature regarding the association between knowledge about the healthiness of food and external influences during full-time working female consumers' pre-purchase information search regarding high-frequency food products. Therefore, this study aimed to determine the mediating role of objective and subjective knowledge of working women regarding the healthiness of food in the effect of external influences on their pre-purchase information search for high-frequency food products.

This study employed a quantitative, descriptive, cross-sectional survey design. Data were collected from a purposively selected sample of South African full-time working female consumers between the ages of 18 and 65 years (N = 223) using online questionnaires. Construct validity was determined for all the scales using exploratory factor analysis. Internal reliability of the yielded factors was ensured using Cronbach alpha values.

The results indicated that respondents had high levels of objective knowledge regarding the healthiness of food (82.43% correct) and SK (measured on a five-point Likert scale) of frequently consumed healthy foods (mean = 4.03) and nutrient intake limitations (mean = 3.82). Besides, convenience (mean = 3.74), as well as price and product comparisons (mean = 3.53) were considered to be more important external influences (measured on a five-point Likert scale) than visual attributes (mean = 2.56) during these respondents' information search. The importance of these aspects may be due to the lack of time they have to search for information in-store. The respondents indicated that expiry date (mean = 3.30), nutritional value and ingredients (mean = 2.54) were more important (measured on a five-point Likert scale) aspects on food labels than claims (mean = 2.19) and allergens (mean = 2.17). These findings agree with previous research stating that consumers with adequate levels of knowledge are more likely to make use of nutritional information and ingredient lists.

In conclusion, according to the structural equation model, objective knowledge or subjective knowledge did not mediate external influences such as price, visual attributes, and convenience, since these influences had a direct influence on the in-store information search process based on the labels of frequently purchased food. Objective knowledge has had no mediating effect on the pre-purchase information search process. These findings are contradicting to previous research showing that subjective knowledge has a positive effect on the use of external factors. However, subjective knowledge has had a mediating effect on respondents experiencing the external influence of a family need for exclusion of some ingredients (allergens and those due to diabetes) during their food label-based information search. Therefore, it is important to understand that subjective knowledge has only had a mediating effect on respondents' information search in-store, when exposed to a family-related external influence. The study thus contributes to a better understanding of this population group's information search process and indicates that the women in the study are still playing a gatekeeping role in the wellness of their households.

**KEYWORDS:** Food label information, Frequently used food products, Healthy foods, Information search, Objective knowledge, Subjective knowledge, Working women

## OPSOMMING

Vroue het 'n oorsigrol ten opsigte van hul huishoudings, maar vorm ook deel van die arbeidsmag. Navorsing dui aan dat vroue steeds hoofsaaklik vir die vestiging van gesonde eetgewoontes in hul huishoudings verantwoordelik is, en dus ook vir die keuse van voedsel wat in die huis toegelaat word. Werkende vroulike verbruikers het egter dikwels nie tyd of voldoende kennis om ingeligte besluite oor gesonde voedsel te neem nie.

Volgens vorige navorsing word objektiewe sowel as subjektiewe kennis sterk met die selfgerapporteerde gebruik van die voedingsetiket geassosieer, ongeag gesondheidsverwante eienskappe. Die invloed van objektiewe kennis en subjektiewe kennis tydens besluitneming begin verskil wanneer verbruikers nie met 'n produk vertrou is nie. Verbruikers moet genoegsame objektiewe kennis besit om betroubare voedselkeuses te maak wanneer hulle kruideniersware koop. Onvoldoende objektiewe en subjektiewe kennis lei tot die vermyding van voedingsinligting op voedsel etikette.

Die huidige studie stel voor dat die nodige objektiewe en subjektiewe kennis van gesonde voedsel werkende vroulike verbruikers tydens die inligtingsoektog vir voedselprodukte kan help deur die relevante inligting op voedsel etikette te gebruik, terwyl eksterne invloede ook tydens die besluitneming 'n rol speel. Navorsing oor die belangrikheid van eksterne invloede tydens die raadpleging van voedsel etikette vir hoëfrekwensievoedselprodukte is nodig om spesifieke invloede wat werkende vroulike verbruikers tydens aankoopbesluite as belangrik ag, te verstaan. Verbruikers vertrou op hul kennis en dikwels ook op eksterne aspekte soos prys, handelsmerk en ander bemarkingspogings tydens hul inligtingsoektog voor hulle aankope maak. Daar bestaan egter 'n leemte in die huidige literatuur rakende die verband tussen kennis oor gesonde voedsel en eksterne invloede tydens voltyds werkende vroulike verbruikers se inligtingsoektog rakende aankope van hoëfrekwensievoedselprodukte. Daarom was die doel van die studie om die mediërende rol van objektiewe en subjektiewe kennis van werkende vroue ten opsigte van die gesondheid van voedsel in die uitwerking van eksterne invloede gedurende die vooraankoopinligtingsoektog vir hoëfrekwensievoedselprodukte te bepaal.

Die studie het gebruik gemaak van 'n kwantitatiewe, beskrywende, deursnitopname-ontwerp. Data is versamel uit 'n doelgerig geselekteerde steekproef van voltyds werkende Suid-Afrikaanse vroue tussen die ouderdom van 18 en 65 jaar (N = 223) met behulp van aanlyn vraelyste. Konstruksiegeldigheid is vir al die skale met behulp van verkennende faktorontleding bepaal. Die interne betroubaarheid van die faktore wat gelewer is, is deur Cronbach se alfa-koëffisiënt verseker.

Die resultate het aangetoon dat die respondente hoë vlakke gehad het van objektiewe kennis ten opsigte van die gesonde voedingswaarde (82.43% korrek) en subjektiewe kennis (gemeet op 'n vyfpunt-Likertskaal) van gesonde voedsel wat gereeld verbruik word (gemiddelde = 4.03) en beperkings op nutriënt-inname (gemiddelde = 3.82). Tydens hierdie respondente se inligtingsoektog is gerief (gemiddelde = 3.74), prys- en produkvergelykings (gemiddelde = 3.53) en, in 'n mindere mate, visuele eienskappe (gemiddelde = 2.56) as belangrike eksterne invloede (gemeet op 'n vyfpunt-Likertskaal) beskou. Die belangrikheid van hierdie aspekte kan voortspruit uit die gebrek aan tyd wat die respondente benodig om inligting in die winkel te soek. Ten opsigte van voedsel-etikette het die respondente aangetoon dat die vervaldatum (gemiddelde = 3.30), voedingswaarde en bestanddele (gemiddelde = 2.54) belangriker (gemeet op 'n vyfpunt-Likertskaal) as aansprake (gemiddelde = 2.19) en allergene (gemiddelde = 2.17) was. Hierdie bevindings stem ooreen met vorige navorsing wat sê dat dit meer waarskynlik is dat verbruikers met 'n hoë kennisvlak van voedingsinligting en lysie van bestanddele gebruik maak.

Ten slotte het objektiewe en subjektiewe kennis, volgens die struktuurvergelykingsmodel, geen mediërende effek op eksterne invloede soos prys, visuele aspekte en gerief gehad nie, aangesien hierdie invloede 'n direkte uitwerking op die inligtingsoekproses ten opsigte van etikette van hoëfrekwensievoedselprodukte in die winkel gehad het. Objektiewe kennis het geen mediërende effek op die vooraankoopinligtingsoektog gehad nie. Hierdie bevindings is teenstrydig met vorige navorsing wat toon dat subjektiewe kennis 'n positiewe uitwerking op die gebruik van eksterne faktore het. Subjektiewe kennis het wel 'n mediërende effek op respondente se gebruik van eksterne invloede gehad, waar familieledes se behoefte aan die uitsluiting van spesifieke bestanddele (soos allergene of weens gesondheidstoestande soos diabetes) die gebruik van inligting op die voedsel-etiket genoodsaak het. Daarom is dit belangrik om te verstaan dat subjektiewe kennis slegs 'n mediërende uitwerking op werkende vroulike verbruikers se gebruik van inligting in die winkel gehad het wanneer hulle blootgestel is aan 'n gesinsverwante eksterne invloed. Hierdie studie dra dus by tot 'n beter begrip van hierdie populasiegroep se inligtingsoektogproses en dui aan dat die vroue in die studie steeds 'n opsigtersrol met betrekking tot die welstand van hul huishoudings speel.

## CONCEPT CLARIFICATION

External influences	<p>External influences refer to stimuli from the outside world to which consumers are exposed, which include product and environmental factors (Ling <i>et al.</i>, 2015:30). This study focuses on the external influences working female consumers are exposed to during the purchasing process. These influences include marketing-related efforts and social influences.</p>
Food label	<p>A food label is any visual presentation permanently attached to a container of food products presenting, among others, written information of the product, its composition and the manufacturer, as well as the name of the brand or symbols or other information for marketing purposes, providing that legal requirements are met. For the purpose of this study, the food label will be the source of information the working female consumer uses to make healthy decisions and will focus on the expiry date, nutritional table, ingredient list, allergens and claims (health, nutritional and others).</p>
Food label information	<p>Food labels communicate information of the product from the packaging to the consumer (Prinsloo <i>et al.</i>, 2012:84-85).</p>
Healthiness	<p>Healthiness of food is mostly associated with nutritional value (Oakes &amp; Slotterback, 1999:57) and includes food being modified to be healthier (Rozin <i>et al.</i>, 1999:613). Healthiness of food entails the consumption of a variety of foods to improve wellbeing and reduce food-related risks, as supported by Niva (2007:387). For the purpose of the</p>

	present study, healthiness of food is viewed as including all of these aspects.
Health-related food label information	For this study, health-related food label information pertains to food label information that may assist a consumer in making a choice which they may perceive to be healthy, such as nutrition information, specific ingredients, expiry date, allergens, as well as health and nutrition claims.
High-frequency food products	The food products that consumers purchase most frequently, according to Statistics South Africa (2017:21), and which are included in the national “food basket”.
Information search	An information search entails the use of numerous internal and external sources of information before consumers make a purchasing decision (Andereck, 2009:1). This study primarily focuses on the information search based on the food label.
Information sources	Information sources are used during the information search process in order to minimise any uncertainties a consumer may have regarding a food product (Almeida-Santana & Moreno-Gil, 2017:151). These sources can be internal (such as knowledge and memory) or external (such as advertisements and word of mouth) (Ling <i>et al.</i> , 2015:29).
Naturalness	Food naturalness refers to the status of food in terms of its link with the environment (“being in accordance with nature”) and the effect food has on an individual’s balanced diet and health when consumed (Binninger, 2017:252).

Objective knowledge	The information regarding a specific food product that is actually known and stored in a consumer's memory (Brucks, 1985:2).
Product positioning	For the purpose of this study, product positioning is defined as the position in which the product is situated in-store (e.g. on the shelf).
Subjective knowledge	For the purpose of this study subjective knowledge is seen as the information that consumers think they know (Brucks, 1985:2) regarding a specific food product.
Working female consumers	For the purpose of this study, working female consumers are seen as women who are employed full-time, participate in grocery shopping and are between the working ages of 18 and 65 years.

(References found in Chapter 1)

## LIST OF ABBREVIATIONS

CFA	Confirmatory factor analysis
CFI	Comparative fit index
CI	Confidence interval
EFA	Exploratory factor analysis
FAO	Food and Agricultural Organisation of the United Nations
GI	Glycaemic index
IP	Internet protocol
HFFP	High-frequency food product
OK	Objective knowledge
RMSEA	Root mean error of approximation
SEM	Structural equation modelling
SK	Subjective knowledge
W-FC	Working female consumer

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# CHAPTER 1: INTRODUCTION

## 1.1 BACKGROUND AND JUSTIFICATION TO THE RESEARCH

Although many (almost 50% of) women form part of the South African labour force, caring for their families still remains one of their key responsibilities. Their “gatekeeper” or caretaker role involves daily decision making to support their family’s wellbeing. This research study explores working female consumers (W-FCs) and their food-purchasing behaviour during the purchase of high-frequency food products (HFFPs).

The responsibility of the mother or caretaker to establish healthy eating patterns in the household is well recorded in the research literature (Bruce *et al.*, 2015:32-33; Raskind *et al.*, 2017:125). Women are generally responsible for selecting the food products that enter their homes (Raskind *et al.*, 2017:125). These women are in control of not only their own health but also the health of those living with them (Raskind *et al.*, 2017:125). Therefore, their health consciousness contributes to real responsibility of their household’s (including their spouse’s and children’s) health, food choices and health problem avoidance (Bruce *et al.*, 2015:32; Srivastava, 2015:1632-1633). It is expected of the primary caretaking woman to ensure healthy eating patterns for the family; however, they may experience challenges, such as unhealthy purchasing requests from their children and information overload during food purchases (Anitha & Mohan, 2016:270; Koen *et al.*, 2018:414; Lucas-Thompson *et al.*, 2017:357-358).

Several women are formally employed, most often to support their families financially, which holds significant changes in their shopping behaviour (Oumlil & Rao, 1984:68). Full-time employment contributes to challenges W-FCs experience as they experience pressure when trying to achieve work-life balance. Stressors that generally have an effect on the food-purchasing decisions of W-FCs include time management and information overload (Morin *et al.*, 2013:43). Such stressors may also serve as reasons why some women struggle to make healthy food choices.

It may be assumed that W-FCs’ time availability for food product-related pre-purchase information search is limited, which may compromise fully informed healthy food purchase selections (Backes-Gellner *et al.*, 2014:467; Jacobs & Padavic, 2015:82). Koen *et al.* (2018:414) found that consumers (specifically in Cape Town) did not have sufficient time to read information on food labels due to those external factors discussed in this section (e.g. busy schedules, work and children). Also, time-strained consumers in the area of Potchefstroom and Klerksdorp (South Africa) have turned from time-intensive purchasing to quick purchasing, avoiding food label information (Jacobs *et al.*, 2010:517; Kempen *et al.*, 2011:75). These changes are supported by Prinsloo *et al.* (2012:84), who argue that although food purchases may be seen as routine

decisions, various issues, such as health, socio-environmental factors and value for money, are complicating food decisions.

### **1.1.1 Consumers' information search for food products**

Food is mostly a basic physiological need all humans strive for in order to prevent hunger. Therefore, these needs play a significant innate role during the pre-purchase information search for acquiring healthy food products (Roe & Bruwer, 2017:1364). During the pre-purchase information search regarding food products, W-FCs can retrieve information in two ways: externally (such as via the sociocultural environment and marketing efforts); and internally (through memory and perception).

Food labels serve as an indispensably valuable external source of information when consumers want to make healthier food decisions (Peters-Teixeira & Badrie, 2005:513; Kumar & Kapoor, 2017:218, 226), since these labels contain information such as nutritional values, health and nutritional claims, ingredient lists and allergens (Prinsloo *et al.*, 2012:86). According to Prinsloo *et al.* (2012:90) consumers use food labels as an external guideline for personally driven needs such as health issues and religion. However, marketing campaigns focus on food sales and not necessarily on the healthiness of food products (Prinsloo *et al.*, 2012:85).

Demographics and product category play a considerable role in consumers' search for food label information. Consumers with high levels of education considerably rely on food label information when searching for food products (Grunert *et al.*, 2010:187; Kumar & Kapoor, 2017:226); thus women often regard the nutritional value on food labels as important (Kumar & Kapoor, 2017:226). For food products with an established health image, consumers search for nutritional values, while they have a lower tendency to search for this information when considering purchases for confectionery products (Grunert *et al.*, 2010:187). However, Jacobs *et al.* (2010:518) found that South African consumers (from the Potchefstroom and Klerksdorp region) tend to avoid food label information since external influences, such as price consideration and limited time, are regarded as more important. Nevertheless, they mostly search for internal information in their memory before consulting external resources during their pre-purchase information search (Bruce *et al.*, 2015:31; Ungerer, 2014:415). The present study investigates the role that knowledge regarding healthy food plays in the pre-purchase information search on food labels amidst W-FCs' exposure to the abundance of external influences.

### **1.1.2 The importance of external influences in-store**

External influences in the study include any influences inside the retail environment and consumers' shopping environment that may influence their product choice during their pre-purchase information search process (Ungerer, 2014:414). According to Prinsloo *et al.* (2012:94), the notion that purchasing food is less complex than other product decisions is a misconception. The influence of external and internal factors during consumers' food purchases is often intertwined.

W-FCs are exposed to various external influences that influence food purchases, which also influence specific eating habits (Burton *et al.*, 2017:188; Jarosz, 2017:528). They often lack the time to search and evaluate available information on different brands in the same food product range (Bruce *et al.*, 2017:1). If there is a lack of time, consumers tend to consume more processed, ready-to-eat meals, which may negatively influence their wellbeing (Jarosz, 2017:528). Research has shown that the notion of naturalness, which is subjectively valued, triumphs over the idea of convenience food (Kraus, 2015:1631). Marketing inputs attempt to motivate consumers to purchase their products through mass-media advertisements, direct marketing, the product itself, packaging, promotions and product positioning (i.e. the marketing mix and where the product is positioned in-store) (Ungerer, 2014:414). Consumers who have unhealthy eating habits pay more attention to unhealthy food advertisements, thus providing higher remembrance during their pre-purchase information search (Giese *et al.*, 2015:55). Positively, it has been shown that consumers' awareness of promotions becomes irrelevant for healthy food product categories (Nikolova & Inman, 2015:830). It is thus essential to explore what the importance of knowledge and different external influences are during W-FCs' in-store decision-making processes.

### **1.1.3 Knowledge (objective and subjective) of the healthiness of food**

When searching for information, consumers tend to use their knowledge as an internal source to ease the process (Guo & Meng, 2008:261). Two types of knowledge are important in the present study, namely objective knowledge (OK) (what consumers truly know) and subjective knowledge (SK) (what consumers believe that they know) (Brucks, 1985:2; Donoghue *et al.*, 2016:385-386; Guo & Meng, 2008:260). Chocarro *et al.* (2009:185) support the importance of consumer knowledge during purchasing by showing that consumers with high levels of knowledge conduct a greater-than-average search for external influences when having to choose between different food products, allowing them to make informed choices easier. Similarly, individuals with low SK tend to overlook food products with an overload of nutritional information and prefer to purchase food products with nutritional information that is easy to understand (Gomez *et al.*, 2017:25).

Gatekeepers who have more confidence in their knowledge of food tend to make healthier purchasing choices (Burton *et al.*, 2017:188). Both OK and SK may play an essential part in the consumer's pre-purchase information search. In the context of the present study regarding both external influences and knowledge during the food pre-purchase information search, research has shown that product brands have a higher chance to influence the choices of consumers with category-specific knowledge than those without such knowledge (Chocarro *et al.*, 2009:184). Therefore Burton *et al.* (2017:188) recommend that consumers with lower self-confidence in their food product knowledge should be educated regarding the nutrients and health benefits and disadvantages of consuming various food products.

Ares *et al.* (2016:72) emphasise that there is a lack of research that focuses on concepts that are related to different measurements of SK regarding consumers' health choices and more product-specific combinations. The available research on consumers' pre-purchase information search mainly focuses on specific products such as wine or travelling (Schäufele & Hamm, 2017:383), as well as organic or genetically modified foods (Van Nierop *et al.*, 2011; Zander & Hamm, 2012). However, to the knowledge of the researcher, there is a gap in research focusing on W-FCs and HFFPs and how their knowledge contributes to their pre-purchase information search process when they are exposed to external influences. By describing both the OK and the SK, as well as the importance of specific external influences during the pre-purchase information search for HFFPs, researchers in the consumer sciences discipline can better understand the information search of W-FCs.

## **1.2 PROBLEM STATEMENT**

Based on the above background and justification supported by relevant literature, the problem that needs to be investigated concerns W-FCs who are already experiencing stressors related to work-life balancing and are continually being exposed to an abundance of external influences in the retail environment when having to shop for HFFPs for both themselves and their families. It is proposed that having the necessary OK and SK regarding healthy foods may assist W-FCs during their pre-purchase information search, using the relevant information on food labels, despite various diverting external influences, to ultimately support healthier food choices. However, there is a gap in the current literature regarding the association between food knowledge and external influences during W-FCs' pre-purchase information search regarding HFFPs to support this notion.

South African W-FCs are an essential group to study since they constitute a large part of the population that are responsible for shopping for groceries and the health of their households. Nevertheless, little is known about the basic OK and SK that W-FCs have regarding the healthiness of food products and the level of their pre-purchase information search processes

(i.e. consulting food labels for health-related information) before purchasing HFFPs. In-store, there is an overabundance of products and information. W-FCs who are already time-restricted are often overwhelmed by information on the variety of different products, brands and marketing strategies, leaving them with a short decision-making time. These women have to rely on heuristic measures instead of consulting food labels, which may cause uninformed food-purchasing decisions. Ample research on consumer behaviour from a marketing perspective is available, but according to the best knowledge of the researcher, research regarding food decision making is lacking in the consumer sciences field. Informed food decision making may ultimately promote consumer health. Therefore, the present study aims to address this gap in research and can be used to inform food labelling regulations which would contribute to better food choices.

The study determines the level of OK and SK of W-FCs, and the importance of external influences (e.g. product-related and promotional information, available time and income) to W-FCs in-store during their extensive pre-purchase information search for HFFP with health-related food label information. Besides, there is an absence of understanding whether these influences play a role in consumers' pre-purchase information search and purchasing choices, regardless of their level of knowledge. Most of the available research focuses on only one product and not a category, such as HFFPs. Lastly, the existing research is not based on South African women but on consumers from other countries.

Assessing the importance of external influences during the in-store food label search for HFFPs is needed to understand what particular influences W-FCs regard as important in making purchasing decisions. These external influences may include the marketing mix (product, price, promotion and position) and other components such as time, income and family commitments. Also, the researcher needs to describe whether available OK and SK will enable W-FCs to focus on actual important label-related information, such as the nutritional value of the product, rather than marketing promotions (which are not necessarily the healthier option).

### **1.2.1 Main research question**

What is the mediating role of OK and SK of W-FCs regarding the healthiness of food in the effect of external influences on W-FCs' pre-purchase information search of HFFPs?

### **1.2.2 Aim**

The aim of the study is to describe the basic knowledge (objective and subjective) of W-FCs in South Africa regarding the healthiness of food and the effect of this knowledge on the importance of external influences on their pre-purchase information search for HFFPs.

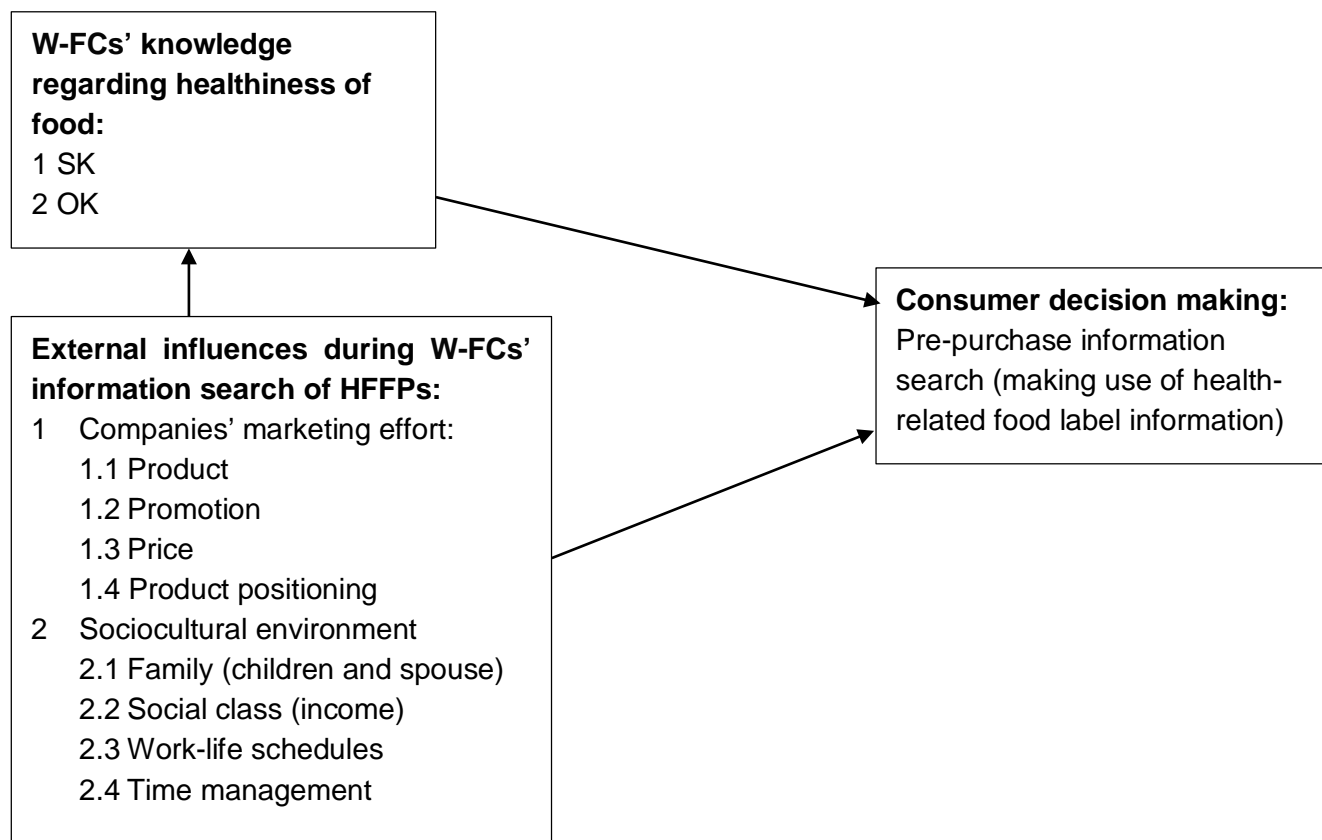
### **1.2.3 Objectives**

In order to reach the above-stated aim of this study, the objectives of the study are:

- to describe the basic knowledge of W-FCs regarding the healthiness of HFFPs in terms of their
  - objective knowledge (OK) and
  - subjective knowledge (SK);
- to describe the importance that W-FCs attach to different external influences during their pre-purchase information search of HFFPs;
- to describe the extent of the pre-purchase information search based on health-related food label information in which W-FCs engage for HFFPs; and
- to determine the mediating role of OK and SK of W-FCs regarding the healthiness of food in the effect of external influences on W-FCs' pre-purchase information search of HFFPs.

## **1.3 CONCEPTUAL FRAMEWORK**

The conceptual framework shown in Figure 1.1 depicts the basic concepts relevant to W-FCs' grocery-shopping experience. As mentioned before, the effect of W-FCs' knowledge (objective and subjective) on the importance of external influences during the pre-purchase information search for HFFPs is described in the study to enable the researcher to determine the impact of these influences on consumers' decision making based on the consumer decision-making model of Schiffman and Kanuk (Ungerer, 2014:413). Therefore, the mediating effect that W-FCs' knowledge may have on the extent to which external influences (marketing efforts and sociocultural environment) have an effect on their pre-purchase information search (using food labels) for HFFPs will be determined. It is proven through the above marketing literature that external influences have a direct impact on consumers' information search. However, there is a gap in consumer research regarding the effect of external influences on consumers' knowledge when searching for information in-store.



**Figure 1.1: Conceptual framework of working female consumers' pre-purchase information search for HFFPs.**

#### 1.4 STRUCTURE OF THE DISSERTATION

This dissertation consists of five chapters. A short discussion of each chapter is provided below. References are provided after each chapter based on the reference guidelines of the North-West University. Chapter 4, the research article, has been prepared for the *British Food Journal* and the reference style is based on the prescribed format of the journal (included as Addendum G Author guidelines). A reference list is included after each chapter.

**Chapter 1** serves as a compact introduction and provides the background and justification of the study. A general introduction is provided with the justification for the study and a problem statement. The aim and objectives are explained, and the conceptual framework with a short description is provided at the end.

**Chapter 2** provides the reader with an in-depth literature study of the role of OK and SK in the effect of external influences during the in-store information search for HFFPs in the context of W-FCs.

**Chapter 3** provides a discussion of the applicable methodology used for this study. The justification for using these specific methods in the study is described as well. The ethical considerations are discussed, as well as the reliability and validity of the study.

**Chapter 4** presents the results and a discussion thereof as a research article, in which the data collected are described and analysed.

**Chapter 5** is the conclusion of the dissertation. This chapter also serves as a platform for providing recommendations for further studies.

The addenda include the following: (A) Questionnaire; (B) Informed consent form; (C) Ethical approval certificate; (D) Advertisement to participate in study; (E) Ethical approval of amendment; (F) Additional results tables; (G) Research article guidelines; (H) Language editing letter; and (I) Turnitin report.

## **1.5 AUTHORS' CONTRIBUTIONS**

The aims and objectives of the study have been formulated by a team of academics. Each researcher has played a particular role throughout the study. Table 1.1 provides a summary of these contributions.

**Table 1.1: Researchers' expertise and competence and the roles of the members in the research team**

Researcher	Expertise and roles of the member
Prof M van der Merwe (supervisor)	<ul style="list-style-type: none"> <li>• Experience in survey research</li> <li>• Experience as a supervisor</li> <li>• Proven research and publication record</li> <li>• Expert in consumer behaviour</li> <li>• Responsible as supervisor to provide scientific guidance during the study and critically review the research process and dissertation</li> </ul>
Dr H de Beer (co-supervisor)	<ul style="list-style-type: none"> <li>• Experience in survey research</li> <li>• Experience as a supervisor</li> <li>• Proven research and publication record</li> <li>• Expert in food science</li> <li>• Responsible as a co-supervisor to provide scientific guidance during the study and critically review the research process and dissertation</li> </ul>
M Nel (Master of Consumer Sciences student)	<ul style="list-style-type: none"> <li>• Student writing master's dissertation</li> <li>• Experience in quantitative survey research from honours project and dissertation; completed honours module in Research Methodology and attended a master's student workshop in research methodology of the Africa Unit for Transdisciplinary Health Research</li> <li>• Responsible for the literature research, data collection, statistical interpretation, text drafting and writing of master's dissertation</li> </ul>
Prof SM Ellis	<ul style="list-style-type: none"> <li>• Experience in statistical analysis</li> <li>• Responsible for statistical analysis and providing assistance with the interpretation of the data and results</li> </ul>

## DECLARATION OF AUTHORS' CONTRIBUTIONS

I declare that I have approved the above-mentioned article, that my role in the study as indicated above is representative of my actual contribution and that I hereby give my consent that this article may be published as part of the master's dissertation of M Nel.



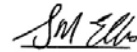
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**Prof M van der Merwe**



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**Dr H de Beer**



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**Prof S Ellis**

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## CHAPTER 2: LITERATURE REVIEW

### 2.1 INTRODUCTION TO SOUTH AFRICAN WORKING WOMEN

Women have increasingly begun to share the financial responsibility to improve the overall living standard of their households (McGinn & Oh, 2017:84; Oumlil & Rao, 1984:68; Sidhu & Saluja, 2016:2). Women who earn a higher income are often in the position to outsource unpaid household labour (McGinn & Oh, 2017:85); however, they are still mostly responsible for household tasks (McGinn & Oh, 2017:85). Another motivation for women to take on additional work outside their home is the need for recognition, since hard work at home is often overlooked (Kotze & Whitehead, 2003:78; Sidhu & Saluja, 2016:12-13). According to the literature, working female consumers (W-FCs) in industrialised countries (e.g. North America and Europe) who play the role of a caretaker choose to work part-time if financially possible or otherwise full-time in order to support their households (Bardasi & Gornick, 2000:4, 11; Oumlil & Rao, 1984:68; Thorsteinson, 2003:154).

The Labour Law in South Africa stipulates that a total of 45 hours are allowed per week for work (Erasmus & Du Toit, 2017). According to Statistics South Africa (2018:18-19), 53.2% of women in South Africa participate in the labour force, compared to a 65.6% participation of men. Working women in South Africa have been reported to balance numerous different roles simultaneously (e.g. work and taking care of their family) (Kotze & Whitehead, 2003:77), which influence their decision making (Van der Merwe *et al.*, 2019) and affect healthy food choices and, consequently, their household members' wellbeing.

As there have been minimal changes in their household responsibilities (Sidhu & Saluja, 2016:13), women experience challenges in achieving work-life balance and resulting stressors such as time management and information overload (Morin *et al.*, 2013:43). They are more involved in household tasks, whereas men are mostly in charge of household repair work and administration (Komatsu *et al.*, 2018:258). Traditionally, women are seen as the primary caretakers of households, although other caretakers may include fathers, grandparents or other adults too (Kotze & Whitehead, 2003:78).

Parents are the first and often foremost influencers of eating habits (Bruce *et al.*, 2015:33); therefore it is important that healthy eating behaviour should be established from a young age. The household caretaker is exposed to various situational factors that may influence food choices during the food-purchasing process. Adults' food-purchasing choices are possibly directly linked to the quality of their own dietary habits (Lenk *et al.*, 2018:76). High levels of self-control positively relate to healthy eating habits (Giese *et al.*, 2015:56). As already mentioned, the female gatekeeper is mainly responsible for healthy food consumption patterns in the household. Apart

from knowledge, other stressors, such as time restrictions and information overload due to product information, the variety of products and other external stimuli, cause women to struggle with making healthy food choices when shopping for food products (Morin *et al.*, 2013:43). In a 2003 study, some South African women admitted that they did not have enough time to make nutritious food choices (Kotze & Whitehead, 2003:80). According to Bosman *et al.* (2014:40), health-conscious South African consumers tend to use the information on labels regarding health benefits, although disinterest, time constraints and their monthly budget were identified as barriers for not using information during the purchasing decision. These authors also recommended consumer food label education to promote health benefits using labels.

To promote public health, the South African government has embarked on sugar tax and salt reduction campaigns. Public campaigns aim to reduce the intake of sugar by implementing sugar taxes in South Africa to motivate healthier eating habits to decrease communicable diseases (Griffith *et al.*, 2017:34; World Health Organisation, 2018). Moreover, in 2013, the Salt Watch campaign was set in motion in South Africa. The campaign is supported by the National Department of Health and led by the Heart and Stroke Foundation South Africa, which is also responsible for the implementation of the National Consumer Awareness campaign (Hunter College New York City Food Policy Center, 2017). The latter was established to reduce the sodium intake of South Africans, thereby decreasing cardiovascular diseases, such as high blood pressure, as one in three adults struggle with high blood pressure in this country (Kaldor, 2019:1319; Koen *et al.*, 2018:413). Also, it has been recommended by research that grocery stores should create in-store “health corners” and “low cholesterol aisles” to optimise consumers’ available time in-store looking for specific health-beneficial food products (Dörnyei *et al.*, 2017:198). These corners and aisles may assist consumers’ in their in-store searches as healthy products are grouped together, reducing the exposure to additional external product-related influences in the store.

For the study, the focus is on full-time W-FCs. This literature chapter will discuss and further contextualise objective knowledge (OK) and subjective knowledge (SK), as well as the external influences that working women (as the main household gatekeepers for food purchases) are confronted with during food-purchasing decision making. Besides this, the gaps in consumer research regarding the effect of knowledge of external influences on consumers when searching for information in-store will be identified. Although the researcher attempted to include the most recent literature in this review, for comprehensiveness, some older sources have been included, especially seminal authors’ work related to theory.

## **2.2 WORKING FEMALE CONSUMERS' ROLE IN SOCIETY REGARDING FOOD CONSUMPTION**

Women, often seen as the gatekeepers or caretakers of their households, regulate the food that enters their homes (Bruce *et al.*, 2015:32-33; Elliot & Bowen, 2018:514; Raskind *et al.*, 2017:125; Srivastava, 2015:1632-1633). According to research, women prefer to look at a food product's nutritional label before purchasing it (Kumar & Kapoor, 2017:226). However, in a 2003 study, several South African women admitted to not having enough time to make nutritious food choices (Kotze & Whitehead, 2003:80). Women face the challenge of immense pressure from society relating to healthy food consumption practices for their children (Elliot & Bowen, 2018:501). In addition, their personal health consciousness contributes to the food choices they make for their households and establishing long-term healthy eating habits (Bruce *et al.*, 2015:32). Research has indicated that healthy food consumption supports gatekeepers and their children to have a significantly lower body mass index (Elliot & Bowen, 2018:503).

Adults have the responsibility to influence and form a child's food consumption habits, knowledge and use of food labels (Hunt, 2003:101; Prinsloo *et al.*, 2012:89). However, mothering is sometimes restricted in regulatory and social contexts, often resulting in compromised consumption routines of their young children due to work schedules (Agrawal *et al.*, 2018:64; Elliot & Bowen, 2018:503). Even more so, children make food-purchasing requests that may influence their parents' purchasing choices (Anitha & Mohan, 2016:270; Koen *et al.*, 2018:414; Lucas-Thompson *et al.*, 2017:357-358).

Owing to a lack of time, many consumers do not read food labels in-store during their pre-purchase searches (Koen *et al.*, 2018:414); therefore healthy food purchases may be compromised (Backes-Gellner *et al.*, 2014:467; Jacobs & Padavic, 2015:82). Furthermore, studies in South Africa have shown that limited time causes consumers to perform quick purchases (avoiding food labels) rather than intensive purchases (Jacobs *et al.*, 2010:517; Kempen *et al.*, 2011:75). On the other hand, having the confidence to seek and purchase healthy food promotes general wellbeing, since confident consumers may purchase fresh rather than processed foods and have better knowledge to prepare healthier meals as opposed to those with low food-related self-confidence (Burton *et al.*, 2017:188; Lenk *et al.*, 2018:76). The latter individuals are more prone to impulse buying due to a lack of time to plan grocery shopping expeditions ahead of time (Koen *et al.*, 2018:414; Oumlil & Rao 1984:69). In contrast, some individuals with high food-related self-confidence are more likely to use shopping lists and product information when searching for and selecting food products (Burton *et al.*, 2017:188; Oumlil & Rao 1984:69). Nevertheless, a consumer's decision-making process is likely to involve intentional or unintentional pre-purchase information searching based on the consumer's psychological field (internal influencers) before the purchase action takes place (Dörnyei *et al.*, 2017:192).

## **2.3 FOOD-PURCHASING DECISION-MAKING PROCESS**

Several factors are involved during the food-purchasing decision-making process, as shown in Chapter 1. Internal factors, such as memory search, are used before consulting external factors for the information search of food products (Bruce *et al.*, 2015:31; Prinsloo *et al.*, 2012:88). External factors, mostly affecting the decision-making process for food products, are aspects related to consumers' sociocultural environment and situational factors directly focused on the marketing of food products (Kerstetter & Cho, 2014:961-962; Prinsloo *et al.*, 2012:88). Information presented on food products seems to be the most valuable source of information that may assist consumers' pre-purchase information search regarding these products.

Most consumers read food labels upon first-time purchasing of food products (Bosman *et al.*, 2010:520; Peters-Teixeira & Badrie, 2005:511). However, according to Prinsloo *et al.* (2012:87), most food products are purchased habitually, and then the information on these food products is not necessarily used as a source of information. Still, when used, food labels can serve as a valuable external source of information when searching for information on healthy food products (Peters-Teixeira & Badrie, 2005:513; Kumar & Kapoor, 2017:218, 226). A more in-depth discussion will follow regarding the pre-purchase information search, since this phase of the consumer decision-making process, in addition to consumer knowledge, encompasses the main theoretical foundation of the study.

### **2.3.1 Pre-purchase information search**

Academic research on consumers' information search behaviour has a long history within the field of marketing, although fundamental questions regarding this topic remain (Hasan *et al.*, 2019:61; Moorthy *et al.*, 1997:264). When searching for information, the procedure is viewed as a cognitive step during the decision-making process (Fallon *et al.*, 2014:24). The purpose of an information search attempt is to enable consumers to identify the best possible product brand to purchase when uncertainty about a product exists (Moorthy *et al.*, 1997:267).

During the pre-purchase information search, W-FCs search for information internally (i.e. in their stored memory and perceptions) and externally (i.e. in the sociocultural environment and among marketing efforts) (Kerstetter & Cho, 2014:961-962; Koen *et al.*, 2015:14; Prinsloo *et al.*, 2012:88). Consumers firstly search internally for information, and if they lack knowledge of a specific product, external cues will be used (Dörmyei *et al.*, 2017:192). In addition, they make use of their experiences, feelings, thoughts and previous actions (Kuhlthau, 1991:362). When searching for information, consumers identify a gap in their knowledge regarding a product and a consequent need to close that gap (Kuhlthau, 1991:362). While searching for information regarding a food product, in particular, most consumers make use of different measurements, of which price and

brand name are two of the attributes most used (Dörnyei *et al.*, 2017:194). Therefore the theory suggests that the extent of the information search should increase according to the level of motivation a consumer has to purchase a specific product (Brucks, 1985:12).

### **2.3.2 Pre-purchase information search for food products**

Consumers' information search for food products theoretically starts when they recognise a physiological need to prevent the sensation of hunger (Cant *et al.*, 2009:197; Dörnyei *et al.*, 2017:192; Shrosbree, 2014:84). Internal influences of a physiological and physical nature, such as hunger, low blood sugar and curiosity, may influence other in-store food product-related needs (Prinsloo *et al.*, 2012:88), including Maslow's higher-order hierarchy of needs, such as emotional (wellbeing) and social acceptance needs (Shrosbree, 2014:84). All of these needs play an essential internal role during the information search process for healthier food product options (Roe & Bruwer, 2017:1364).

According to Martin and Morich (2011:5), consumers make conscious decisions with the help of memory, perception, attention and awareness. Most consumers apply cognitive thinking to enable them to actively search for food products that will fulfil their needs (Rieger *et al.*, 2017:202). It is assumed that consumers are aware of specific products due to previous search activities such as advertisements, but based on information or exposure, unsuitable brands are eliminated (Moorthy *et al.*, 1997:264). Also, a consumer's information search process can be influenced by his or her level of uncertainty regarding a product and the various attributes of that product (e.g. packaging, taste and convenience) (Chorus & Timmermans, 2008:8).

If consumers' cognitive thinking is influenced while searching for information, for instance when they notice a product on promotion, they will likely be attracted to this product and unconsciously become brand loyal or choose in favour of habitual shopping behaviour (Jean & Yazdanifard, 2015:35; Martin & Morich, 2011:3-4). This habitual process allows consumers to take shortcuts (e.g. through ignoring unknown brands) and make choices among brands without having to evaluate the information on all of the various available brands (Ungerer, 2014:409). Dörnyei *et al.* (2017:197) found that when consumers have more product options to choose from, they deem brand name as more important than product attributes. Furthermore, previous research shows that some consumers are more satisfied with a limited information search than others (Jun & Park, 2016:99).

It can be suggested that W-FCs may take heuristic measures (shortcuts) to avoid numerous challenges during the pre-purchase information search phase of decision making (Rieger *et al.*, 2017:202; Ungerer, 2014:422). Individuals who are, for instance, brand loyal and have product preferences tend to have prior experience with specific food product categories; therefore they

save time by not searching for an abundance of information in-store (Chocarro *et al.*, 2009:185). In addition, the theory of the effect of prior experiences on the amount of research and search correlations of Moorthy *et al.* (1997:267) suggests that when consumers perceive a brand to be the best out of numerous other brands, they will choose to purchase this brand without searching for any further information (Dörnyei *et al.*, 2017:197). Consumers with higher SK tend to pursue an information search for familiar products less often (House *et al.*, 2004:114). Moreover, consumers who have higher levels of SK about nutrition tend to engage less in heuristic thinking, since they are not overwhelmed by an abundance of different product brands (Gomez *et al.*, 2017:23; Martin & Morich, 2011:14).

### **2.3.3 Pre-purchase information search and food labels**

Internationally and nationally, consumers' food choices are driven by their health awareness (Department of Health, 2015:4). Some public policy measures communicated through health claims presented on food labels presume that consumers search for product information to make the correct purchasing decision (Dörnyei *et al.*, 2017:198-199). Numerous public campaigns concerning health issues aim to minimise the risk of non-communicable diseases (Griffith *et al.*, 2017:34). These actions include salt and sugar reduction in foods and healthy food awareness campaigns, as previously mentioned (Department of Health, 2015:3, 19; World Health Organisation, 2018).

Legislation, specifically on food labelling, control the information provided on a label and serves as an essential practical way of executing public policy guidelines, ultimately leading to better food choices (Koen *et al.*, 2016:17). Health-concerned South African consumers consider labels as a vital source of information for specific health advantages during the consumer decision-making process (Bosman *et al.*, 2014:40; Peters-Teixeira & Badrie, 2005:511). Previous studies conducted in Gauteng and the North-West Province have indicated that consumers regard food label information as a valuable source of information when searching for food products (Jacobs *et al.*, 2010:520). However, a recent study shows that consumers in Cape Town distrust food label information, including information pertaining to allergens, expiry dates, health benefits, quality guarantees and ingredient lists (Koen *et al.*, 2015:14).

Food labelling regulations in South Africa (R.146 of 2010) aim to protect consumers against any risky, abusive or misleading information on food packaging (Koen *et al.*, 2016:13, 18; Department of Health, 2010). In the case of food product comparisons made in-store, consumers may use packaging cues such as size, colour, ingredient lists, nutritional labels and weight to evaluate different brand alternatives (Prinsloo *et al.*, 2012:87). The respondents in a study conducted in Potchefstroom and Klerksdorp were shown how to read food labels before purchasing food products; however, they did not have the necessary understanding of the information to interpret

it in order to use it to its full potential (Jacobs *et al.*, 2010:520). Although public campaigns strive to improve overall consumer health (Dörnyei *et al.*, 2017:198-199), it seems that consumers do not always trust the information on food packaging (Koen *et al.*, 2015:14). Furthermore, marketers make use of different promotional and advertising methods to persuade consumers to purchase particular food products (Thienhirun & Chung, 2017:58).

#### **2.3.4 Constraints in using food labels**

Food packaging and label information play an essential role in a product's marketing success, serving as a form of product promotion (Hawkes, 2010:334). The food labelling regulations, in general, protect consumers from any misleading nutritional information on food labels and claims made on food products' packaging as these regulations specifically address aspects of advertising of foods (Department of Health, 2010). Health and nutrient-related claims include any statement made on food packaging regarding specific food compounds (e.g. fat, sugar, salt, carbohydrates, fibre, protein, vitamins or minerals) (Department of Health, 2010). In addition, the South African Department of Health also regulates product claims indicating levels of Glycaemic Index (GI), reduction of disease risks, product labelling logos or symbols and weight loss (Koen *et al.*, 2016:19).

Individuals who lack education regarding health information and claims on food labels seem to make food purchases that do not necessarily fulfil their dietary needs (Food and Agricultural Organisation of the United Nations [FAO], 2018; Soederberg Miller & Cassady, 2015:213). Moreover, regardless of education and income, some consumers deem taste to be more critical than food label information (Koen *et al.*, 2016:15). However, some South African consumers show low interest in nutrient content claims (being high in fibre and low glycaemic index), which may be attributed to a lack of knowledge and understanding when reading nutritional label information (Bosman *et al.*, 2010:520; Koen *et al.*, 2018:416),

Manufacturers' product-positioning efforts ensure that consumers form a specific identity for each brand they encounter (Moorthy *et al.*, 1997:264). According to Albuquerque *et al.* (2018:39), marketing forces, also referred to as "situational factors", have an impact on long-term food choices and behaviour. Marketers do not necessarily focus on the healthiness of the food product, since they tend to put products on the market in order to make a profit (Prinsloo *et al.*, 2012:85). Therefore, labelling regulation (R.146 of 2010) aim to protect consumers against false food product information (South African Association for Food Science and Technology, 2014).

In a study conducted in Cape Town, consumers lacked trust in the information presented on food nutrition labels and instead avoided reading the information (Koen *et al.*, 2018:415). In contrast, Bosman *et al.* (2014:40) found that metropolitan consumers in South Africa strongly believe that

food label information is supported by scientific research. Young consumers in India with the knowledge to understand food labels deemed these labels as an important factor when searching for food products to purchase (Kumar & Kapoor, 2017:226). Although some consumers make use of the information on food labels to navigate their way into purchasing healthy food, they sometimes face numerous constraints, especially if they lack the required education to understand the information (Kumar & Kapoor, 2017:226; Soederberg Miller & Cassady, 2015:213)

Consumers from studies conducted in South Africa in areas such as Cape Town, Gauteng and the North-West Province who specified that they did not read food labels were shown to be influenced by constraints such as a disinterest, time limitations, price and habitual purchasing (Bosman *et al.*, 2010:520; Bosman *et al.*, 2014:40; Koen *et al.*, 2015:20). Individuals in South Africa are doubtful regarding the influence of price and time constraints on their usage of health information on food labels (Bosman *et al.*, 2014:40). Thus, according to these studies, consumers are prone to ignore nutritional information because of a lack of time to read the information, busy work-life schedules and children's food-purchasing requests (Bosman *et al.*, 2010:520-521; Jacobs *et al.*, 2010: 518; Koen *et al.*, 2018:414). On the other hand, studies have shown that consumers do read labels in order to accumulate the food product's expiry date, ingredient list and health claims, such as "low fat" and "low in cholesterol" (Bosman *et al.*, 2010:520, Kumar & Kapoor, 2017:224; Peters-Teixeira & Badrie, 2005:512).

## **2.4 CONSUMER KNOWLEDGE**

"Knowledge is a concept – like gravity. You cannot see it, but can only observe its effects" (Hunt, 2003:100). The investigation of consumer knowledge is a crucial subject in consumer research among numerous different products and worthy to investigate (Alba & Hutchinson, 1987:411; Carlson *et al.*, 2008:864). Applied to consumer research, cognitive structures consist of realistic knowledge that consumers have obtained about products and the manner in which this information is stored and organised in their memory (Alba & Hutchinson, 1987:414; Brucks, 1985:2). Knowledge, therefore, consists of stored information and understanding of a product and may influence consumers' information search behaviour (Hunt, 2003:100) and informal processing of, for example, food products (Sanlier & Karakus, 2010:147; Verbeke, 2008:284). Consumers obtain knowledge through product use and exposure (Raju *et al.*, 1995:154). Limited food knowledge may cause consumers to be more prone to struggling when evaluating different products, compared to individuals with more knowledge and experience (Donoghue *et al.*, 2016:388). Since OK and SK are critical theoretical constructs of knowledge and applied to this study, these will be discussed in greater depth.

### **2.4.1 Objective and subjective knowledge**

Although consumer knowledge can be conceptualised in various ways, for the present study, the concept of knowledge is based on two conceptual constructs: OK is defined as information based on scientific facts stored correctly in a consumer's long-term memory; and SK is described as information that consumers think they have regarding a product, based on acquired knowledge through exposure and experience (Brucks, 1985:2; Pieniak *et al.*, 2010:582; Soederberg Miller & Cassady, 2015:209). According to research, SK is a strong motivational driver for consumers' behaviour, even though SK is merely what consumers perceive to think they know (Brucks, 1985:2). A substantial discrepancy between OK and SK occurs when consumers cannot identify between information they actually know and what they think they know (House *et al.*, 2004:114).

Knowledge is based on prior exposure to factors such as product-category information (Park *et al.*, 1994:78). The gap between a consumer's OK and SK can decrease when consumers execute the information search correctly, since OK is recalled from an individual's memory (internally) while their SK influences their motivation to search for more product information (externally), thus increasing their overall knowledge of a product through an information search (Gomez *et al.*, 2017:23; Park *et al.*, 1994:71). Moreover, there is a paucity in research on consumers' information searches and the use of external influences and knowledge.

### **2.4.2 Objective and subjective knowledge related to food**

Consumers' food-related knowledge is an essential theme in consumer research. Consumer knowledge regarding several food topics have been examined (Carlson *et al.*, 2008:864), focusing on aspects such as healthy, organic or genetically modified foods (Van Nierop *et al.*, 2011; Zander & Hamm, 2012). Moreover, there is an abundance of research concerning the usage of food labels in the search for healthy foods worldwide (e.g. Hunt, 2003; Jacobs *et al.*, 2010; Kempen *et al.*, 2011; Peters-Teixeira & Badrie, 2005; Soederberg Miller & Cassady, 2015). However, limited research exists regarding the difference between consumers' OK and SK in South Africa. Moreover, in South Africa, the predominant focus of research on food-related knowledge has been on foods from fast-food chains (Srivastava, 2015:1632), wine (Bruwer *et al.*, 2017), food labels (Bosman *et al.*, 2014; Jacobs *et al.*, 2010) and time and price constraints when searching for food information (Bosman *et al.*, 2014).

OK and SK may have different effects on consumers' information search processes (Park *et al.*, 1994:71), as mentioned before. Consumers use their knowledge as an internal cue when searching for information (Guo & Meng, 2008:261). When consumers are confronted with external factors during the information search for products, food knowledge plays an eminent role in minimising risk probability during the information search process (Bruwer *et al.*, 2017:840;

Chocarro *et al.*, 2009:185; Moorthy *et al.*, 1997:264). Research by Chocarro *et al.* (2009:185) supports the importance of consumers' knowledge during the external search for information in order for them to make easier, healthier and more informed decisions.

There is a proven link between individuals' knowledge and product involvement (Bruwer *et al.*, 2017:840). Research shows that consumers with better food-related knowledge tend to make healthier food decisions (Grunert *et al.*, 2010:187; Kumar & Kapoor, 2017:226). It can thus be expected that women with more food-related knowledge will have confidence associated with higher levels of perceived control over their household's diet and eating habits (Burton *et al.*, 2017:188). Food-related confidence regarding healthier food habits increases with an individual's education, status and income (Burton *et al.*, 2017:188).

Previous research has shown that SK positively affects external factors (price, brand and origin), perceived product quality and choice probability, which plays a significant role during the information search process; however, product brands play a more significant role than category-specific knowledge (Chocarro *et al.*, 2009:179, 184). In contrast to some other consumer products, the food product information search can entirely happen in-store due to the information provided on food labels (Prinsloo *et al.*, 2012:88; Thienhirun & Chung, 2017:58, 62). Thus consumers can expand their knowledge of a food product during the searching stage before purchasing it (Prinsloo *et al.*, 2012:91).

#### **2.4.3 The influence of objective and subjective knowledge on the use of food label information**

Both OK and SK are strongly associated with self-reported nutritional label use, regardless of health-related attributes (Soederberg Miller & Cassady, 2015:210). If consumers lack self-confidence based on their knowledge of a product, they may be motivated to search for more information using external sources such as media, family and expanded education (Brucks, 1985:2; Koen *et al.*, 2016:13). However, the influence of OK and SK in decision making begins to differ when consumers are unable to acknowledge how much product familiarity they truly have (House *et al.*, 2004:114). Consumers should possess an acceptable amount of OK to make reliable food choices when shopping for groceries (Pieniak *et al.*, 2010:582; Soederberg Miller & Cassady, 2015:210). Still, if consumers have limited OK or SK, they tend to overlook food products with an abundance of nutritional information and prefer to purchase food products with easy-to-understand food label information (e.g. nutritional value, allergens and ingredients) (Gomez *et al.*, 2017:25; Prinsloo *et al.*, 2012:91; Soederberg Miller & Cassady, 2015:210).

Drichoutis *et al.* (2005:105) found that although consumers may be well educated, it may not apply to food knowledge and the ability to understand and interpret food label information. According to House *et al.* (2008:114), consumers with higher SK are less inclined to search for information before purchasing a food product. However, should they search for label information, research has shown a prominent link between OK and the accurate use of food labels (e.g. ingredient lists, nutrition claims and nutrition labels) (Soederberg Miller & Cassady, 2015:210). Moreover, consumers with higher SK than OK may be overconfident about what they think they know, which may lead to unhealthy food purchases (Soederberg Miller & Cassady, 2015:210). Therefore, food campaigns should aim to protect all consumers against any false advertisements and promotions of unhealthy foods.

## **2.5 EXTERNAL INFLUENCES DURING THE IN-STORE INFORMATION SEARCH FOR FOOD PRODUCTS**

In-store, consumers are exposed to an abundance of product-related information in various formats (Dörnyei *et al.*, 2017:191). Consumers specifically rely on external factors when they experience a lack of internal sources (Dörnyei *et al.*, 2017:192). These external factors include marketers' input (e.g. advertising, direct marketing, information on product packaging, brochures and promotions), reseller information (e.g. catalogues and consultants), third-party information (e.g. magazines) and product positioning (i.e. product position in-store and marketing mix) (Dörnyei *et al.*, 2017:192; Ungerer, 2014:414). In addition, perceptions may be formed when consumers are exposed to external influences such as word of mouth (Human, 2014:229, 231).

For this study, external influences include factors in the retail and the shopping environment, which may influence consumers' information search and, ultimately, their food product choices (Ungerer, 2014:414). As discussed in Chapter 1, the pre-purchase information search of W-FCs depends on internal and external influences. Dörnyei *et al.* (2017:197) show that consumers do not conduct an in-depth information search when purchasing frequently bought food products. However, food-purchasing involvement may change when a household member's dietary needs change. Reasons for these changes may include newly diagnosed health-related conditions, struggling with food allergies or having specific religious dietary requirements. Having a specific dietary preference due to health concerns changes food-purchasing decisions to high-involvement decisions (Prinsloo *et al.*, 2012:87, 89). Therefore, food product manufacturers are obligated to, for instance, illustrate culture-appropriate symbols on their packaging to indicate whether a food product may be consumed by people with specific cultural preferences and beliefs (Bearth & Siegrist, 2019:142; Prinsloo *et al.*, 2012:89). However, all information on food products in South Africa is subject to legal requirements controlled by the South African government.

During the external information search process, consumers make use of numerous influences to support their search (Dörnyei *et al.*, 2017:192). These influences may include the following: price (Dörnyei *et al.*, 2017:191); brands (Sang *et al.*, 2018:154; Verbeke, 2008:283); sociocultural factors (Prinsloo *et al.*, 2012:88); public policy guidelines (Dörnyei *et al.*, 2017:198-199); promotional and advertising influences (Martin & Morich, 2011:3); product assortment and position (De Menezes, 2018:2789; Van Herpen & Bosmans, 2018:192); product-related factors (Drichoutis *et al.*, 2005:100; Prinsloo *et al.*, 2012:87-88); and marketing material (Prinsloo *et al.*, 2012:85). These influences are essential for the study to describe how W-FCs are using these during the in-store information search process for food products.

### **2.5.1 Price**

Price and brand loyalty are seen as the two most used external influences when consumers are shopping for food products (Benoit *et al.*, 2019:276; Dörnyei *et al.*, 2017:191; Drichoutis *et al.*, 2005:107). It is well known that consumers compare price and quality to each other (Benoit *et al.*, 2019:272; Drichoutis *et al.*, 2005:107; Terblanche, 2018:56). Often consumers reason that the higher a product's price, the better is its quality (Chorus & Timmermans, 2008:19). Therefore, product price plays a prominent role in whether consumers will purchase a food product or not (Thienhirun & Chung, 2017:58). It is proposed that individuals who regard price as an essential attribute when doing grocery shopping tend not to use food labels, since nutritional information versus price act as competitors (Drichoutis *et al.*, 2005:107). Consumers also use price and brand in the case of information overload, thereby tending to pick the product best suited for their budget when they are overwhelmed by product choices (Dörnyei *et al.*, 2017:192).

In a study among metropolitan consumers in South Africa, food label information was found to be more significant than the price of food products (Bosman *et al.*, 2014:40). Another survey in South Africa indicated that product price was more important than the label information (Jacobs *et al.*, 2010:517). It is thus evident that the price of food plays a vital part in consumers' pre-purchase information search process and that price-sensitive consumers do not rely on nutritional content.

### **2.5.2 Brands**

The wider a brand's variety of products offered, the more likely it is that a consumer will become or stay brand loyal (Sang *et al.*, 2018:154). Moreover, some consumers tend to seek for brands with a health image, assuming that the products produced by these brands will be healthy to consume (Verbeke, 2008:283). In addition, when being exposed to only a few brands (e.g. two brands of white bread), more attributes such as price, appearance, nutritional value, taste and brand name may be taken into consideration simultaneously, as opposed to when consumers are exposed to numerous brands (e.g. six different brands of white bread), in which case they may

most likely not be able to process all of the information due to information overload (Dörnyei *et al.*, 2017:191). Therefore, research shows that consumers prefer to purchase products with a brand name they know, deeming nutritional information as unimportant (Bosman *et al.*, 2014:39; Koen *et al.*, 2018:415).

Most consumers prefer brand label information and logos to remain consistent over time since brand familiarity makes grocery shopping easier and faster (Koen *et al.*, 2018:415). However, marketers frequently change food products' packaging to lure specific target groups, including children (Prinsloo *et al.*, 2012:89). W-FCs have limited time available to search for and evaluate the information of food brands in the same food product category (Bruce *et al.*, 2017:1). Habitual shopping was found to be popular among consumers in Cape Town (South Africa) due to the lack of time to search for information on food labels (Koen *et al.*, 2018:414). However, if a consumer is not brand loyal, he or she may latch on to impulse buying due to a lack of time to search for adequate information regarding a product (Koen *et al.*, 2018:414; Oumlil & Rao, 1984:69).

### **2.5.3 Product assortment and position**

The on-shelf and in-store organisation and assortment of food products have an influence on consumers' choice regarding which product to purchase (De Menezes, 2018:2789; Van Herpen & Bosmans, 2018:192). Grocery stores present a variety of food products to ensure that consumers find their first choice in the store (Terblanche, 2018:51). Consumers appreciate a more extensive variety of product categories since they feel that they have more options to choose from (Terblanche, 2018:55; Van Herpen & Bosmans, 2018:200). On the other hand, large product varieties result in consumers' tendency to use price and brand as a quick-pick solution (Dörnyei *et al.*, 2017:192; Drichoutis *et al.*, 2005:107). There is a delicate balance between an overload of choices and enough choices to choose from in-store before feeling overwhelmed (Benoit *et al.*, 2019:270).

Specific "free-from" claims have increased consumers' awareness of natural and healthy foods. Consumers, therefore, search for fresh and clean food products (Haridasan & Fernando, 2018:215). In the case of product-specific in-store variety, consumers tend to purchase more of a product type if it is categorised and localised in one area (Thienhirun & Chung, 2017:58; Van Herpen & Bosmans, 2018:200). Within the healthy food category, assortment often relates to features such as organic or fair trade food (Van Herpen & Bosmans, 2018:192). Smaller food product brands need to emphasise information such as "fair trade" to increase their chance of luring consumers during their in-store information search process (Dörnyei *et al.*, 2017:198).

Trendy women are more inclined to purchase organic food products than men (Hashem *et al.*, 2018:1605; Keramitsoglou *et al.*, 2018:596). Previous research has shown that these women prefer to purchase organic food based on its relationship to health and factors such as freshness and taste (Hashem *et al.*, 2018:1601). Global awareness towards healthier eating has also become a driver in in-store product assortment and display to attract the attention of all consumers, even those with a low income, by attempting to motivate healthier food purchases (Sutton *et al.*, 2019:1, 5).

#### **2.5.4 Product-related factors**

Marketers' input in terms of product-related factors attempts to influence consumers' product-purchasing choices through the use of the product packaging and the product itself (Ungerer, 2014:414). Product-related factors that play a significant role when consumers search for food to purchase in-store include freshness, taste, packaging appearance, labels and comfort of use (Prinsloo *et al.*, 2012:88; Thienhirun & Chung, 2017:58, 62). Product class (e.g. product packaging and labels) is highly associated with the information search process (Park *et al.*, 1994:77; Verbeke, 2008:285). When individuals are shopping for groceries in-store, an abundance of information is available, including food product labels, packaging, ingredient lists, logos, quality, taste and visual attractiveness (Drichoutis *et al.*, 2005:100; Prinsloo *et al.*, 2012:87-88). Consumers tend to search for food products with an established health image through nutritional values; however, they have a lower tendency to search for information on a product when purchasing unhealthy food products (Grunert *et al.*, 2010:187).

Ample research on food label information and the use thereof exists. The food label as a direct information source attached to the food product provides valuable information to consumers. Nutritional information presented on food labels is a communicative method to give information regarding a product to a consumer in-store (Soederberg Miller & Cassady, 2015:208). An ingredient list also serves as a valuable source of consumer information; however, knowledge is vital to help consumers to understand ingredient lists when searching for information (Soederberg Miller & Cassady, 2015:212). This knowledge is of particular importance when specific dietary requirements are followed that play a role when looking at the ingredient list, since vegetarians, for example, are more aware of food labels than those without a specific diet (Kumar & Kapoor, 2017:226). Claims such as "high in fibre" or "low in fat" act as heuristic measures to support healthier choices (FAO, 2018). Also, previous research has proven that low-income consumers most likely consume less than the dietary recommended amount of fruits and vegetables per day, unless it is on promotion, when consumption thereof increases (Sutton *et al.*, 2019:1, 5). It is thus clear that various product factors influence consumers' decision making in-store.

### **2.5.5 Promotional and advertising influences**

Unconscious decisions are driven by environmental attributes (e.g. exposure to marketing factors such as advertisements and promotions) (Martin & Morich, 2011:3). Stores use promotions as a means of persuading consumers to purchase a specific product (Thienhirun & Chung, 2017:58). Research shows that consumers' promotional awareness does not feature when consumers purchase healthy food or new food products (Nikolova & Inman, 2015:830; Thienhirun & Chung, 2017:71). The My Plate recommendations of the United States Department of Agriculture, a campaign to promote healthy eating, state that consumers with a higher level of health knowledge might purchase higher quantities of healthy food, such as fruits and vegetables (Sutton *et al.*, 2019:3).

Specific information on food labels, for example claims or allergens, communicates information to consumers. Drichoutis *et al.* (2005:110) state that consumers with the knowledge to understand and interpret food labels might use the nutritional information on food packaging as a form of product advertisement. However, Verbeke (2008:284) found that consumers' knowledge regarding functional food mostly derives from advertisements, although they regard advertisements as the least trustworthy source of information.

Advertising, price and brand name are the most important external factors that influence food purchases when seeking products (Dörnyei *et al.*, 2017:191; Drichoutis *et al.*, 2005:107; Kumar & Kapoor, 2017:226). Therefore consumers with unhealthy eating habits tend to pay more attention to unhealthy food advertisements (e.g. fast-food chain advertisements) (Griese *et al.*, 2015:55). Point-of-purchase promotions, including aspects such as product and brand signs, labels, taste tests and food demonstrations, as an additional form of advertisement, are used to make consumers with a lower income aware of healthy food products, which are not necessarily expensive to purchase (Sutton *et al.*, 2019:1).

### **2.5.6 Sociocultural factors influencing pre-purchase decision making**

External factors, such as marketing and sociocultural factors, play a part in the food products that consumers select from the shelf (Prinsloo *et al.*, 2012:88). Consumers previously exposed to a specific product during the search process are dependent on various demographic characteristics such as religion, age and gender (Burton *et al.*, 2017:188; Ling & Yazdanifard, 2015:29-30). Demographics also play a considerable role in consumers' search for food label information (Grunert *et al.*, 2010:187). In particular, higher levels of education show a positive correlation to the use of food labels and making healthier food choices (Grunert *et al.*, 2010:187; Kumar & Kapoor, 2017:226; Soederberg Miller & Cassady, 2015:210).

Some studies have revealed that women tend to buy more fruit and vegetables than their male counterparts (Lenk *et al.*, 2018:76; Sutton *et al.*, 2019:5). Health-conscious women presumably tend to buy healthy food for their family, but pressure from family members may hinder their healthy intentions (Dikčius *et al.*, 2019:256; Koen *et al.*, 2018:414). According to Vepsäläinen *et al.* (2018:1239), only 49% of children's purchasing requests are granted, since parents remain the primary influencers of a household due to their financial and decision-making authority (Dikčius *et al.*, 2019:253).

W-FCs' food purchases are regularly subjected to external influences, including work schedules, time management and level of income, which may influence their eating habits (Burton *et al.*, 2017:188; Jarosz, 2017:528). Furthermore, women with a low socio-economic status tend to purchase foods high in sugar and saturated fats, rather than healthier food options such as fruit and vegetables (Jacobs & Padavic, 2015:82; Thiele *et al.*, 2017:13). Therefore, researchers aim to make consumers aware that healthy food is not necessarily expensive (Sutton *et al.*, 2019:2), and public policy guidelines strive to guide all consumers towards making healthier food choices (Dörnyei *et al.*, 2017:198-199).

## **2.6 CONCLUSION**

Women as the main caretakers of a household are responsible for regulating the food that enters their home and their family's wellbeing. However, since many women work full-time, they are confronted with numerous challenges such as work-life balance, family members' purchasing requests, time constraints and in-store information overload. Even with all these constraints, limited research is available to support working consumers in South Africa in-store during their food-purchasing experience. As discussed throughout the literature review, numerous factors are involved during the food-purchasing decision-making process. In the course of the pre-purchase information search process, W-FCs search for information both internally (in their stored memory and perceptions) and externally (e.g. using food labels). When consumers lack knowledge of a food product, they will search for more information externally.

Consumers often struggle to distinguish between their OK and SK; that is, they cannot differentiate between information that they actually know and what they think they know. The gap between consumers' OK and SK can decrease if they have basic food knowledge and know how to consult food labels for specific information. When consumers conduct information searches successfully, their overall knowledge of a product will increase.

Consumers' food-related knowledge is an important theme to understand to realise how and why consumers purchase specific food products. However, research on consumers' OK and SK and how they use this knowledge during the information search for food products is insufficient.

Although some consumers may have been educated, they do not necessarily have the correct amount of OK to interpret and use food label information correctly. Moreover, if consumers have high levels of SK, they are less likely to conduct an appropriate information search in-store since they perceive themselves to know enough of a product to purchase it.

External information that may influence a consumer's purchasing choices include price, brand name, assortment, positioning, promotions, advertisements and sociocultural factors. When consumers face time limitations and information overload, they mainly make use of price and brand name to help them choose between different food product options. Valuable information on food labels is the ingredient list, allergens and nutritional content. Food claims indicating high or low quantities of specific components, for example fat or fibre, can assist in choosing a particular product over another and can ultimately contribute to better food choices.

Since there are consumers with little knowledge regarding food label information and health claims, the implementation of Sugar Tax (HPL 2018) and Mandatory Sodium Reduction (R.214 of 2013) regulations attempt to improve South African consumers' overall health (e.g. lowering the incidence of noncommunicable diseases). Although marketers mainly focus on sales, legal requirements protect consumers by eliminating any false and misleading information communicated to consumers before purchasing a food product. This literature review confirms that there is a lack of research in the consumer sciences field regarding the influence of external factors when consumers shop for food, depending on their level of OK and SK.

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## **CHAPTER 3:    METHODODOLOGY**

### **3.1    INTRODUCTION**

The study focused on events of pre-purchase information search frequently experienced by working female consumers (W-FCs) during food product purchasing in their day-to-day lives. This chapter offers a comprehensive discussion of the methodology used during the study on the mediating role of objective knowledge (OK) and subjective knowledge (SK) of W-FCs regarding the healthiness of food in the effect of external influences during the pre-purchase information search process. Aspects to be covered include the design of the research, sampling, data collection and analysis, reliability and ethical deliberations.

### **3.2    RESEARCH DESIGN**

The researcher employed a quantitative, non-experimental, descriptive, and cross-sectional survey. A quantitative study was done systematically and objectively, using numerical data from the selected sample group in the population (i.e. W-FCs in South Africa) (Maree & Pietersen, 2016:162). A non-experimental descriptive design was employed to describe the variables of interest as they would occur in normal circumstances (Botma *et al.*, 2016:110). Furthermore, a descriptive survey design was used for the study since there is little known about this research topic (Botma *et al.*, 2016:110). Descriptive research was applicable since shopping for groceries is an everyday task for this population group (Raskind *et al.*, 2017:125). Moreover, a descriptive design is generally included in cross-sectional designs, which make use of questionnaires for data collection (Creswell, 2014a:13).

The cross-sectional design aimed to measure the above variables among W-FCs across South Africa at one point in time in order to describe the current situation; thus the repetition of measurements at a later stage did not apply to the study (Maree & Pietersen, 2016:171). The researcher used a cross-sectional design in order to identify the knowledge (objective and subjective) that working female consumers have about the healthiness of food and the importance they attach to external influences during the pre-purchase information search for high-frequency food products (HFFPs). A survey was conducted online during the study to record respondents' real-life responses due to the identified gap in research regarding the in-store information search of this population group.

### **3.2.1 Target population**

This study focused on W-FCs in South Africa as the target population. W-FCs are of importance in the study since they have to adapt to the new economically driven world in order to support their families financially (Oumlil & Rao, 1984:68), while still playing the various roles they are responsible for in and outside of their households (Backes-Gellner *et al.*, 2014:467; Jacobs & Padavic, 2015:82). However, they have limited time to make food purchases. Several studies regarding women have focused on the purchasing of wine (Schäufele & Hamm, 2017), organic food (Van Nierop *et al.*, 2011; Zander & Hamm, 2012), experienced goods (Zhao *et al.*, 2016) and functional food (Kraus, 2015). Still, to the best of the researcher's awareness, no relevant articles that aim to support W-FCs during their pre-purchase information search for HFFPs exist.

#### **3.2.1.1 Inclusion criteria**

The inclusion criteria refer to the specific attributes an individual should have had to be able to participate in a study (Botma *et al.*, 2016:124). Table 3.1 depicts the inclusion criteria for the study.

**Table 3.1: Inclusion criteria: defining attributes the respondents had to adhere to**

Inclusion criteria	Motivation
Woman	There is an identified gap regarding a woman who works and simultaneously plays a role as a gatekeeper (especially regarding food purchases) in the household.
Employed full-time	W-FCs have less time for activities such as shopping for groceries since they work in order to support their households. However, there is not sufficient research available to fully understand and support them.
Participate in shopping for groceries	The research is based on food purchases; therefore these respondents must participate in shopping for groceries in order for the research to apply to them and allow them to understand and complete the questionnaire.
South African resident	The research is based on South African W-FCs since there is a gap in research regarding the food-purchasing decisions of this group of the population in the country.
Between the ages of 18 and 65	The lawful age to participate in the workforce is 18 years, and 65 years is often the age of retirement in South Africa.
Able to read and comprehend English	Shopping for food involves exposure to food labels that are provided only in English in South Africa. Market-related information exposed to during shopping for food is also mostly provided in English. English is also mostly the language used on social media and in which information is shared on Facebook where the advertisement was placed. Moreover, English is commonly used in the working environment.

### 3.2.1.2 Exclusion criteria

The exclusion criteria refer to the attributes of individuals that make them unsuitable as study respondents. For the present study these criteria are shown in Table 3.2.

**Table 3.2: Exclusion criteria: defining attributes that made respondents ineligible as study respondents**

<b>Exclusion criteria</b>	<b>Motivation</b>
No internet access	The survey required access to the Internet since the distribution method was online. Those without access to the Internet would not be able to complete the survey.
Functionally illiterate	The respondents would not have been capable of reading and interpreting the information on food products or in the survey.

### 3.2.2 Sampling

The study made use of non-probability sampling since the probabilities of selecting a specific person were unknown; thus, the researcher did not know the size of the population (Botma *et al.*, 2016:125) of W-FCs in South Africa. The researcher specifically used purposive sampling which entails that respondents needed to meet specific inclusion criteria to participate in the study. Therefore, other characteristics that were not applicable to the study, which might influence the results in a negative sense, were excluded (Strydom, 2011b:231).

This sampling method did not give everyone an equal chance to participate in the manner a probability random sampling method would have (Creswell, 2014a:158). Nevertheless, the method chosen was applicable to this study since the study attempted to gain basic information focusing on W-FCs. The intent of the study was therefore not to generalise results to consumers beyond the respondents of this survey.

Facebook was selected as a data collection method since statistics prove that 83% of women with access to the Internet around the world use Facebook (The WordStream Blog, 2018), making it a suitable platform through which they could be attracted to participate in the study. The survey was disseminated via Facebook through gatekeepers on different groups that W-FCs might support or be interested in. The administrators of the applicable groups on Facebook, who acted as the gatekeepers, were contacted in advance to obtain permission beforehand and then requested to share the survey advertisement (Addendum A) on their Facebook pages in order to

make possible respondents aware of the study. Facebook groups with topics such as food recipes, women empowerment, supporting mothers, women entrepreneurs and working women groups for South African women were approached. These groups were expected to support women across South Africa likely to meet the inclusion criteria, making it possible to reach the appropriate target population. After making optimal use of the groups mentioned above, more general groups (e.g. marketing-related and town-specific across South Africa) that W-FCs may follow, were approached. The questionnaire posed the inclusion criteria questions before the actual survey began to ensure that only qualifying respondents were permitted to participate.

Respondents were able to follow the link provided with the advertisement (including the inclusion and exclusion criteria) on the Facebook page. They were then taken to a SurveyMonkey® page that displayed an informed consent form (Addendum B) that set out their rights as respondents and explained what was expected from them as respondents during the study. After having read the informed consent form, they were allowed to click on a terms and conditions acceptance block that opened the survey, at which stage they were allowed to fill out the survey. The survey started with questions regarding the inclusion and exclusion criteria. Respondents who did not meet these criteria were thanked for their participation and not allowed to continue with the survey.

### **3.2.3 Determination of sample size**

A total of 200 respondents needed to fill out the online survey, which was the minimum number needed to perform a meaningful factor analysis (Creswell, 2014a:189). The sample size (N) was determined with the assistance of Professor Ellis from the Statistical Consultation Services of the North-West University. Since this was a non-probability sample, the results could not be generalised; therefore no power calculation was applicable.

### **3.2.4 Recruitment of respondents**

As stated before, this research was needed since there was a gap in research on South African W-FCs. No specific race, age or culture was excluded, and the respondents had to fully comply with the inclusion criteria to participate (Botma *et al.*, 2016:14-15). The advertisement (Addendum D) on Facebook explained to possible respondents that there was no direct benefit for them to participate in the study. However, their participation would contribute to a greater understanding of how W-FCs function during the pre-purchase information search for HFFPs. Their contribution, therefore, would enable the researcher to better understand the pre-purchase information search process of these women for future researchers to ultimately assist them in not being exploited by advertisements in grocery stores. There was no reimbursement for respondents since the survey only took approximately 15 minutes of their time. They could complete it in the convenience of their own home at a time that was suitable to them, and it had limited additional cost implications

for them because the respondents had already been using data while they were on Facebook. As the respondents chose on their own whether to participate or not by clicking on the link of the posted advertisement, there was no mediator or independent person involved.

### **3.2.5 Process of obtaining informed consent**

The respondents had to provide informed consent to take part in the study (Creswell, 2014b:166; White & McBurney, 2013:54). By obtaining informed consent, the researcher informed the respondents that their participation would hold minimal risks for them. The respondents' identity was kept anonymous by SurveyMonkey® after they had chosen to participate and agreed to the terms and conditions; even the researcher did not know who had completed the survey (Strydom, 2011a:119-120).

Once the respondents had agreed to participate voluntarily, they first had to click on the "agree button" that agreed to all the statements on the informed consent form provided by the researcher (Creswell, 2014b:167; Strydom, 2011a:116). Only written consent (in the form of an agree button) had been given since it was an online survey in which the researcher had no contact with the respondents (White & McBurney, 2013:54). To ensure that the respondents were fully informed regarding the purpose, time duration and research benefits of the study and their right to decline participation, this information was stated on the informed consent form (White & McBurney, 2013:55). This form stated that they were permissible to withdraw from the research study at any time if they felt uncomfortable (Creswell, 2014b:167). Should a respondent have chosen to withdraw from the study, the researcher was able to follow the Internet Protocol (IP) address (after notification of withdrawal with permission from the respondent) in order to remove the respondent's data from the database. The survey was provided in English, with no need for translation into other languages since English is a commonly spoken language in the work environment and widely used on social media, which most people, including W-FCs, communicate.

### **3.2.6 Data collection**

A questionnaire (Addendum A) was developed for the study since no existing questionnaire regarding this specific research theme was available. The survey was distributed electronically, as discussed before in Section 3.1.4.

#### **3.2.6.1 The questionnaire**

Pre-selection before the questionnaire could be done by ensuring that only respondents adhering to the specified inclusion and exclusion criteria gained access to the questionnaire, thus giving the researcher reassurance that the data that had been collected were accurate. The pre-

selection was done according to the inclusion criteria; if the possible respondent had not met the required attributes, the survey did not allow the respondent to continue and automatically closed. However, if the respondent had fit all the required attributes to participate, the survey continued. The five-part questionnaire was developed by consulting the literature on the research topic and from related fields to the constructs of importance. Also, Professor Ellis, a statistical consultant was consulted during the development of the questionnaire to ensure that the questions of the questionnaire were accurate and adequate. The applicable sections and constructs are summarised in Table 3.3.

**Section A** of the questionnaire comprised questions regarding the W-FCs' demographic information, grocery-shopping habits and spendable income per month for food products (Addendum C). Biographical questions included, among other things, age, employment status, food expenditure per month and the number of people in the household (adults and children). These questions might have had a direct impact on the respondents' knowledge of healthy food, their information search methods and the external influences they deemed to be important.

**Table 3.3: Operationalisation of the study**

<b>Section / objective</b>	<b>Questionnaire</b>	<b>Construct</b>	<b>Statistical analysis</b>
Section A: Demographics and general information	Biographical questions	Age Education Employment (full-time) Monthly grocery budget Number of dependants in the household Grocery-shopping habits	Descriptive statistics: Frequencies and percentages
Section B: Objective 1: To describe the basic knowledge of W-FCs regarding the healthiness of HFFPs in terms of their OK	OK of healthiness of HFFPs	Correct and incorrect responses to questions on OK: - True / false / I'm not sure	Exploratory factor analysis (EFA) Mean factor scores (percentages)
Section C: Objective 1: - To describe the basic knowledge of W-FCs regarding the healthiness of HFFPs in terms of their SK	SK of healthiness of HFFPs	SK statements: - Likert scale: (1) Strongly disagree; (5) Strongly agree	EFA Mean factor scores
Section D: Objective 2: - To describe the importance attached to external influences during their pre-purchase	Importance attached to external influences	Importance scale - Likert scale: (1) Unimportant; (5) Extremely important	EFA Mean factor scores

<b>Section / objective</b>	<b>Questionnaire</b>	<b>Construct</b>	<b>Statistical analysis</b>
information search of HFFPs			

**Table 3.4: Operationalisation of the study (Continue)**

<b>Section / objective</b>	<b>Questionnaire</b>	<b>Construct</b>	<b>Statistical analysis</b>
<p>Section E: Objective 3: - To describe the extent of the information search based on health-related food label information that W-FCs engage in for HFFPs</p>		Extent scale: (1) Not at all; (3) To a great extent	EFA Mean factor scores
<p>Sections A-E: Objective 4: - To determine the mediating role of OK and SK of W-FCs regarding the healthiness of food in the association between external influences and W-FCs' pre-purchase information search of HFFPs</p>	Sections A-E	All constructs	Correlations SEM

**Section B** consisted of questions that allowed the researcher to determine the respondents' OK regarding the healthiness of HFFPs. These questions tested whether the respondents knew what healthiness of specific HFFPs entailed. The respondents' OK was tested with true-or-false questions, as proposed by House *et al.* (2004) and Van den Berg (2017) for studies on OK. Statements were compiled based on the food groups of the South African Food-Based Dietary Guidelines (Vorster *et al.*, 2013) and a consumer-orientated nutrition knowledge questionnaire by Dickson-Spillmann *et al.* (2011:619). The questions had especially been formulated for this study since no previous questionnaire existed for this specific theme. The questions had specific correct answers that had been verified by studying the literature.

**Section C** measured the respondents' SK, with the aid of a five-point Likert scale (where 1 = strongly disagree, to 5 = strongly agree) (Addendum A). This section consisted of two parts that were formulated according to examples of Van den Berg (2017). Firstly, the respondents had to indicate to what extent they agreed "when I look at the following statements, I know a lot about ..." (Addendum C), with different statements regarding the healthiness of commonly used foods in any household and the basic health statements from the South African Food-Based Dietary Guidelines and the questionnaire of Dickson-Spillmann *et al.* (2011:619) regarding consumers' knowledge of nutrition (original scale Cronbach's alpha = 0.73). All of the statements in Section C were formulated as statements based on the questions on OK in Section B.

**Section D** revolved around external influences which might affect W-FCs' in-store pre-purchase information search for HFFPs. The importance of each external influence was determined through a five-point Likert scale (where 1 = unimportant, to 5 = extremely important). The questions were formulated from the literature study (Chapter 2). The questions enabled the researcher to describe how important W-FCs regarded external influences when searching in-store for information regarding HFFPs.

**Section E** was used to determine to which extent W-FCs engaged in a pre-purchase information search based on health-related food packaging for specific food products based on a four-point Likert scale (where 1 = never, to 4 = always) (Addendum A). The questions were constructed based on the literature. These findings helped the researcher to understand in which HFFP categories more searches took place.

A cognitive interview was used to pre-test the appropriateness of the research instrument and to ensure that it did not exceed the time limit of 15 minutes, since the questionnaire had not previously been tested or used. It determined whether respondents understood the language and questions in the survey, and identified possible problems respondents could experience during the completion of the questionnaire. These interviews were conducted by the researcher with five

W-FCs who mainly spoke Afrikaans, English or Setswana and met the inclusion and exclusion criteria as required for the main study (as specified in Table 3.1).

Women with different home languages were chosen in order to guarantee that there were no language barriers and that the English language used in the questionnaire would be understood by all of the respondents and was not too complex. The researcher approached the women in their working environment and made appointments with them beforehand. These women were located in Potchefstroom, Rustenburg and Pretoria to provide the cognitive interview with a more accurate result of the South African target population for the study. The researcher provided each respondent with a printed copy of the questionnaire and verbally explained what was expected from them. They completed the questionnaire while being timed. Afterwards, the researcher went through the questions in the questionnaire with the individual respondents. They discussed any possible improvements that could be made to the questionnaire and whether there was anything the respondent had not understood. After minor adjustments, the questionnaire was given to three new W-FCs from different demographic backgrounds meeting the inclusion criteria to conduct the survey. All three women were located in Potchefstroom and spoke Afrikaans or Setswana in their homes. No further modifications were necessary.

### **3.2.6.2 Questionnaire administration**

The researcher made use of online administration of the questionnaire. Direct involvement of the researcher during recruitment was not a concern since the researcher only distributed the survey through the different gatekeepers on Facebook. As the data were collected on a social media platform, respondents across South Africa were able to participate without any travel expenses. Thus the possibility of having a diverse sample from the W-FC population was improved.

The researcher acknowledges that the limitations regarding this research method (questionnaire) include that respondents might have guessed answers rather than selecting an answer objectively (e.g. "I do not know" rather than "true" or "false"). Besides, only computer-literate consumers could participate, since the survey had to be completed online. Even though there were possible limitations, this data collection method offered valuable data as W-FCs regularly use social media (QWERTY, 2017:14). The use of the targeted population provided valuable information to the consumer sciences discipline of W-FCs' knowledge (OK and SK) regarding the healthiness of HFFPs and the importance of external influences while searching for information in-store. Therefore, all literate W-FCs in South Africa with different levels of knowledge played an essential part in the study. The study was advertised beforehand on potential Facebook groups with a link to SurveyMonkey®. The informed consent form was uploaded with the online questionnaire, where all respondents were able to read it and click on the "I agree" button.

### 3.2.7 Data analysis

Descriptive statistics were determined for all variables, including means, frequencies and percentages. The researcher conducted exploratory factor analysis (EFA) using principal axis factoring and Oblimin rotation on the five-point Likert scales for the SK and the importance of external influences, on the three-point Likert scale for the extent of a pre-purchase information search and on the percentage of correct or incorrect responses applicable to the section on OK (Table 3.3). Confirmatory factor analysis (CFA) was conducted to confirm the construct validity of the factors yielded from EFA that made sense theoretically (Field, 2013:13). Three statistical goodness-of-fit indices that were from three different classes were used to measure the fit of the CFA model: chi-square statistic divided by degree of freedom ( $X^2 / df$ ); root mean error of approximation (RMSEA); and comparative fit index (CFI). T-tests, ANOVA's and Spearman's rank-order correlations assisted in determining the effect of biographical data on the factor scores.

Structural equation modelling (SEM) was used to enable the researcher to test the relationship between OK and SK and the importance of external influences during the pre-purchase information search for HFFPs using the same statistical guides as indicated for the CFA. The standardised regression weight ( $\beta$ -values) was used to specify the importance of the relationship among the various identified factors (Field, 2013:69; Van der Merwe *et al.*, 2014:102). The statistical analysis was done with the use of IBM® SPSS® Version 25, except for the CFA and the structural regression modelling, which were done using IBM® SPSS® AMOS 25.0 (Field, 2013:555). The sample was large enough that when the means were calculated, the central limit theorem indicated that the means were distributed normally, whereas when the correlations were determined, Spearman's rank-order correlations were used. Professor Ellis, a statistics expert, was responsible for the statistical analysis of the data.

### **3.3 RELIABILITY AND VALIDITY**

Reliability is the magnitude in which a measuring instrument is repeatable and consistent (Creswell, 2014b:179; Pietersen & Maree, 2016:238). For this study, the researcher determined internal consistency reliability with Cronbach alpha values (Field, 2009:674). Validity determines to what extent a measuring tool measures what it is supposed to measure (Field, 2013:88; Pietersen & Maree, 2016:239). The study made use of face, content and construct validity.

Face validity determines to what extent the instrument appears to be relevant (Bowling, 2009:167), which was ensured by using experts in the fields (Pietersen & Maree, 2016:240) of food science, consumer science and statistics. Content validity was used to ensure that the survey covered the three domains of the study (Field, 2013:13; Jackson, 2016:67): knowledge of basic healthiness of HFFPs; external influences; and pre-purchase information search. Similar to face validity, to ensure content validity of this instrument, the researcher provided individuals with expertise in the field with a draft of the survey to review (Pietersen & Maree, 2016:240). Construct validity was determined through EFA and CFA (Pietersen & Maree, 2016:240; White & McBurney, 2013:131).

### **3.4 ETHICAL CONSIDERATIONS**

The following points explain how the rights of the respondents were protected from an ethical point of view.

#### **3.4.1 Beneficence**

The idea of principlism is to approach research in a manner in which moral problems will be avoided. This is done through the use of one or more moral principles. Beneficence has been ensured by the protection of the respondents during the research study and the minimisation of harm (Botma *et al.*, 2016: 21; Moodley, 2013:57). To minimise harm, the respondents were provided with the option to withdraw from the study at any stage at which they felt uncomfortable before the data were analysed.

#### **3.4.2 Justice, distributive justice and equity**

The aim of justice and equity in the sense of this study was to ensure that all of the respondents were treated fairly. This was ensured using informed consent, the assessment of the risks and benefits and the fair selection of respondents (Botma *et al.*, 2016:346-347). For the study, this entailed selecting W-FCs in South Africa, who are a specific group in the population of interest to the study and setting appropriate inclusion and exclusion criteria to obtain relevant data in an unbiased manner.

### **3.4.3 Respect, dignity and autonomy**

Respect for the respondents was implemented during the study by treating the respondents as autonomous agents. Autonomous people are viewed as individuals who are able to set their own goals and have the choice to refrain from their actions (Botma *et al.*, 2016:345). This was done by means of providing the respondents with the freedom to complete the survey in their own time and to withdraw from the research study at any stage they might feel the desire to do so. SurveyMonkey® allowed the respondents to exit the survey and later return to finish it without losing information already completed. In addition, the survey was also available in cell phone format, since cell phones are frequently used to access social media, thus making access to the survey convenient for the respondents.

### **3.4.4 Relevance and value**

The study is relevant in determining the mediating effect of South African W-FCs' knowledge (objective and subjective) of the healthiness of food products on the importance of external influences while involved in an in-store information search (consulting food labels) for HFFPs. The value of the study concerns providing the consumer sciences field with more information in order to understand consumers' purchasing behaviour better. Moreover, it is of value to understand the mediating role of OK and SK of W-FCs regarding the healthiness of food in the effect of external influences on W-FCs' pre-purchase information search of HFFPs. Furthering this research can ultimately allow consumer scientists to educate W-FCs where there is a gap (e.g. the knowledge of nutritional value, price, ingredient lists and labelling) to allow these consumers to make better-informed food purchases. In turn, purchasing healthier foods will benefit their households and their own health positively.

### **3.4.5 Scientific integrity**

The researcher (a master's student) and her supervisors met on a weekly basis to discuss her progress and possible uncertainties and to ensure that she abided by the protocol set in the research proposal and that all her research-related actions remained ethically sound. The supervisors thoroughly went through the researcher's work and provided feedback on work handed in as per the determined time schedule. These actions and precautions helped to avoid fraud, misconduct and error. Furthermore, the researcher obtained approval from the Scientific Committee of the Africa Unit for Transdisciplinary Health Research and the Health Research Ethics Committee of the Faculty of Health Sciences to ensure that the study adhered to quality scientific standards and research ethics. If any ethical problem or query surfaced, the Health Research Ethics Committee was contacted immediately.

### **3.4.6 Risk-benefit analysis**

This research offered no direct benefits to the respondents. However, indirect benefits offered were to the discipline of consumer sciences in providing a better understanding of consumers' knowledge (OK and SK), the importance of external influences and the extent of consumers' pre-purchase information search. Table 3.4 contains a summary of the risk-benefit analysis. The study has specifically assisted in improving research knowledge, which in the end may enable specialists to better understand W-FCs' pre-purchase information search for food products as has been discussed throughout the study. Another indirect benefit entails that in the long term, consumers in general will benefit from this research when interventions are implemented to improve their knowledge and the quality of their pre-purchase information search during purchasing.

The only risks involved were the time it took the respondent to complete the survey and a small amount of their data that was used; thus the study involved minimal risks. Therefore, the benefits outweighed the risks.

**Table 3.5: Risk-benefit analysis**

Direct benefits	Indirect benefits
None.	Grasping consumers' knowledge (objective and subjective), the importance of external influences and consumers' pre-purchase information search in the consumer sciences field.
Using respondents' time, which is already scarce.	Keeping the survey short in order for it to take approximately 15 minutes to complete.
	Using SurveyMonkey®, which allowed respondents to leave the survey and return later to complete it without losing answers that had already been provided.
Discomfort when filling out the questionnaire with questions about their income and questions on OK where they might feel that their knowledge was inadequate.	The question about income was provided with an option for respondents who preferred not to disclose this information.
	The respondents were assured in the informed consent form that the researcher was interested in their honest answers and that anonymity preserved. They were also assured that they would not be judged based on their answers. Should any discomfort about the questions on OK have been too much for them to bear, they had the option of leaving the questionnaire at any time.

### **3.4.7 Privacy and confidentiality**

As discussed in Section 3.1.5, the respondents' identity was kept anonymous. This was achieved through the use of SurveyMonkey® and because there was no direct contact between the respondents and the researcher, which ensured that the respondents had complete anonymity. The researcher was in no way able to identify the respondents since no personal or identifying information was included in the survey and SurveyMonkey® allowed for anonymous submission by the respondents. However, the researcher had access to the respondents' IP addresses to be able to retract the questionnaires of respondents who indicated that they wanted to withdraw from the study after they had completed the questionnaire. The researcher identified and withdrew incomplete questionnaires during data collection once a week until the study reached 200 successfully completed questionnaires before the data analysis could start.

The survey results were stored safely, with access to the data granted only to the research team who formed part of the study. Further anonymity was guaranteed since the survey did not ask personal questions that might make the respondents feel uncomfortable, except for information on their income; however, they had the option to keep that information private if so desired (Botma *et al.*, 2016:344-345) by selecting the option "prefer not to indicate".

### **3.4.8 Respect for respondents**

The respondents were treated with respect by the researcher throughout the study by means of keeping their identity anonymous, providing them with a clear informed consent form that specified their rights as respondents and by stating that the respondents were allowed to withdraw from the research at any time they felt uncomfortable (Botma *et al.*, 2016:345-346).

### **3.4.9 Data management and storage**

The respondents' identities were kept anonymous, as previously mentioned. The data were electronically exported from the SurveyMonkey® database. Only the two study leaders, the master's student and the statistician could access the data for the purpose of data analysis. The master's student worked from a private computer provided by the Potchefstroom Campus of the North-West University in Building F15.

#### **3.4.10 Dissemination of research results**

Feedback to the respondents will be given via a summary of the findings in an informal user-friendly format posted on the same Facebook groups that the advertisement was placed on for respondents and other Facebook users who are interested in the research findings. The final dissertation on the North-West University Library database and an article from the dissertation published in an accredited journal will serve to disseminate the findings to the wider scientific community.

No conflict of interest is anticipated.

### **3.5 CONCLUSION**

This quantitative study regarding W-FCs' use of OK and SK during the information search process employed a descriptive, cross-sectional survey using online questionnaires. As there is an absence of understanding whether external influences play a role in consumers' pre-purchase information search and purchasing choices, it was an appropriate method to obtain data from W-FCs. Data on the in-store food label search for HFFPs are needed to understand what particular influences W-FCs regard as important in making purchasing decisions. The descriptive nature of the research has aimed to describe the mediating effect of knowledge (objective and subjective) that W-FCs have about the healthiness of food and the importance they attach to external influences during the pre-purchase information search for HFFPs. The online questionnaires have allowed for the use of scales to measure OK and SK, the importance of external influences and the use of health-related label elements during the pre-purchase information search. The factors extracted from EFA in combination with SEM have served to answer the objectives of this study.

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## **CHAPTER 4: RESEARCH ARTICLE**

**Manuscript to be submitted for publication in the *British Food Journal*.**

**This article was written according to the author guidelines for this journal (Addendum G) except for length, which is slightly longer for comprehensiveness of the dissertation.**

**For this dissertation, due to the limited amount of words available for the specific journal, additional data tables are included in the form of an addendum (Addendum F).**

# Knowledge and external influences when searching for food information

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## Abstract

**Purpose** – The purpose of this study is to describe the basic knowledge (objective and subjective) of working female consumers (W-FCs) in South Africa regarding the healthiness of food and the effect of this knowledge on the importance of external influences on their pre-purchase information search for high-frequency food products.

**Design/methodology/approach** – The study employed a quantitative, descriptive, cross-sectional survey design. Data were collected from a purposively selected sample (N = 223) obtained through social media using online questionnaires.

**Findings** – The majority of the W-FCs in this study were qualified and younger than 45 years. The respondents' objective knowledge (OK) regarding healthy foods was good (82.43%). Three external factors, namely visual attractiveness, price and comparison, and convenience were identified as influencing their purchasing decision. The study identified the mediating effect of W-FCs' subjective knowledge (SK) on their use of information on food product labels during the information search.

**Research limitations** – Since this study was based on non-probability sampling, the research findings cannot be generalised.

**Originality/value** – This paper fills a gap in South African research on W-FCs' knowledge of the healthiness of food and the use of external influences when searching for product-related information in-store.

**Keywords** – Food label information; Frequently used food products; Healthy foods; Information search; Objective knowledge; Subjective knowledge; Working women.

**Paper type** – Research paper.

## Introduction

Women are an integral part of the working environment in South Africa since 53.2% of women participate in the formal labour force (Statistics South Africa, 2018) to support their households or fulfil personal goals (Oumlil and Rao, 1984; Sidhu and Saluja, 2016). However, in many families, traditional household tasks are still mainly the responsibility of women, who serve as the “gatekeepers” of their family’s wellbeing (Raskind *et al.*, 2017) and are highly involved in food consumption practices of their family (Sidhu and Saluja, 2016). Thus, these women may face challenges in maintaining a healthy work-life balance and experience stressors such as information overload and time management (Morin *et al.*, 2013).

Working female consumers (W-FCs) may make unhealthy and uninformed food-purchasing decisions (Backes-Gellner *et al.*, 2014; Jacobs and Padavic, 2015) due to a lack of available time for a food product-related pre-purchase information search. Informed food decisions rely on the search for adequate information based on knowledge prior to purchasing a product (Chocarro *et al.*, 2009). Research shows that consumers in South Africa who experience a lack of time engage in heuristic choices or shortcuts with habitual food purchases saving them time during the in-store information search (Bosman *et al.*, 2014; Koen *et al.*, 2015; Ungerer, 2014).

While searching for information regarding food products, consumers use external factors and internal cues (Shrosbree, 2014). External factors such as word of mouth, sociocultural environments and marketing efforts form perceptions when an individual is exposed to a never-before-used product (Human, 2014). However, any external influences in the shopping environment may act as stimuli during consumers’ in-store pre-purchase information search for food products (Ungerer, 2014).

Consumers tend to rely on their knowledge as an internal source of information to simplify their information search processes (Guo and Meng, 2008). Previous research has shown the importance of particularly objective knowledge (OK) (what consumers truly know) and subjective knowledge (SK) (what consumers believe that they know) during consumer decision making (Brucks, 1985; Donoghue *et al.*, 2016; Guo and Meng, 2008). Internal cues based on memory (knowledge) are formed from previous experiences and information processing; thus, if a consumer is satisfied with a previously used product, he or she will most likely purchase and use that product again in future (Crous, 2014; Martin and Morich, 2011).

Popular research topics regarding the pre-purchase information search process for food products are food type-specific and mainly based on products such as wine and organic food (e.g. Zander and Hamm, 2012; Schäufele and Hamm, 2017) or approached from a marketing perspective. This study, however, focused on HFFPs that are part of the South African national “food basket” and include products such as rice, bread and milk. Although these food products may not necessarily be seen by all consumers as healthy foods, they are frequently purchased (essentials) by South African residents (Statistics South Africa, 2017) and form part of consumers’ purchasing preferences. The purpose of the study was to describe the basic OK and SK of full-time W-FCs in South Africa regarding the healthiness of general foods and the mediating role of this knowledge in the importance of external influences during these women’s pre-purchase information searches for HFFPs.

### **Literature review**

The literature review will discuss and further contextualise factors contributing to food-purchasing decision making, the role of knowledge and the external influences with which W-FCs are challenged during the food-purchasing decision in a grocery store. In addition, gaps in research concerning the effect of external influences on consumers’ knowledge when searching for information in-store will be identified. Although the researcher made an effort to incorporate the most recent literature in this review, older sources of seminal authors supporting the theoretical approach of this study have also been included.

#### *Working female consumers*

Most often, a woman regulates the food that enters her home (Bruce *et al.*, 2015; Elliot and Bowen, 2018; Raskind *et al.*, 2017). Research shows that women want to look at food products’ nutritional value before purchasing the product (Kumar and Kapoor, 2017), though South African women have acknowledged that they seldom have enough time to make healthy food purchases (Kotze and Whitehead, 2003). As caretakers, women are foremost responsible for the healthiness of their families (Bruce *et al.*, 2015; Srivastava, 2015) by practising healthy food choices and consumption. They also experience pressure from themselves and society to keep their children healthy (Elliot and Bowen, 2018).

Food-related consumption behaviour is established from a young age (Hunt, 2003; Prinsloo *et al.*, 2012). Adults in the household are responsible for their children’s food consumption habits, knowledge and use of food labels while growing up (Hunt, 2003; Prinsloo *et al.*, 2012). However, children often make food-purchasing requests that may influence their parents’ food purchases (Koen *et al.*, 2018; Lucas-Thompson *et al.*, 2017). Also, a lack of time may lead to South African consumers not reading food labels in-store during their information search process in order to

save time (Jacobs *et al.*, 2010; Kempen *et al.*, 2011; Koen *et al.*, 2018). Thus, healthy food purchases may be compromised (Backes-Gellner *et al.*, 2014; Jacobs and Padavic, 2015).

#### *Pre-purchase information search for food products*

Once a consumer is searching for information, the procedure is viewed as a cognitive component during the decision-making process (Fallon *et al.*, 2014). Searching for information enables consumers to make the best purchasing decision (Moorthy *et al.*, 1997). When W-FCs search for information, they search internally first (i.e. stored memory and perceptions) and externally next (i.e. sociocultural environment and marketing efforts) if they lack knowledge regarding a specific product (Bruce *et al.*, 2015; Kerstetter and Cho, 2004; Koen *et al.*, 2015). Consumers will search for information when they identify a gap in their physiological need to prevent, for instance, the sensation of hunger or low blood sugar (Dörnyei *et al.*, 2017; Shrosbree, 2014). Moreover, when searching for information, consumers may also identify a gap in their knowledge regarding the attributes of a product and a need to close that gap (Kuhlthau, 1991).

The information search process is essential to identify the ideal product for one's needs, but some influencers, such as price and brand, are more important than others (Benoit *et al.*, 2019; Dörnyei *et al.*, 2017). In addition, consumers use internal filtering to sieve out any unwanted product advertisements by turning a blind eye on undesired products or brands (Moorthy *et al.*, 1997); therefore, consumers' information search processes can be influenced by the amount of available product brand types and their different attributes (e.g. convenience, packaging and taste) (Chorus and Timmermans, 2008).

Consumers take heuristic measures to minimise information overload (Rieger *et al.*, 2017; Ungerer, 2014). Habitual shopping behaviour, for example, allows them to make choices among brands without having to evaluate all the information on the product during the information search process (Ungerer, 2014). Brand-loyal consumers use their previous experience to save time in-store by avoiding the information search process (Chocarro *et al.*, 2009). Besides, consumers with SK (i.e. perception) regarding nutrition of a familiar product do not need to use heuristic measures since they do not feel overwhelmed by an abundance of different products (Gomez *et al.*, 2017; Martin and Morich, 2014).

### *Consumer knowledge*

Food knowledge is the cognitive construction of practical knowledge that consumers have attained about products (during the information search process and product use) and how this information was then stored in their memory (Alba & Hutchinson, 1987; Brucks, 1985; Hunt, 2003). If consumers lack knowledge, they may be prone to struggling when evaluating various products (Donoghue *et al.*, 2016). Although consumer knowledge can be divided into different groups, for the present study, knowledge is divided into two conceptual constructs, namely OK (information stored correctly in a consumer's long-term memory) and SK (information that consumers perceive they know) (Brucks, 1985; Soederberg Miller and Cassady, 2015). The gap between a consumer's OK and SK can be closed by searching for information, since OK is recalled from individuals' memory and their SK influences their motivation to search for product information (Park *et al.*, 1994). Moreover, it is believed that SK is a stronger motivational driver for consumers' behaviour than OK (Ahmed and Nordin, 2014).

Consumers' food-related knowledge is an essential theme in the discipline of consumer research. Ample research regarding the use of food labels in the search for healthy foods is available (e.g. Hunt, 2003; Jacobs *et al.*, 2010; Kempen *et al.*, 2011; Peters-Teixeira and Badrie, 2005; Soederberg Miller and Cassady, 2015); nevertheless, a gap regarding consumers' food-related knowledge in South Africa exists. South African research predominantly focuses on nutritional-related food knowledge of foods from fast-food chains (Srivastava, 2015), food labels (Bosman *et al.*, 2014; Jacobs *et al.*, 2010), wine (Bruwer *et al.*, 2017) and time and price constraints when searching for food-related information (Bosman *et al.*, 2014). Evidently, there is inadequate information on how consumers apply knowledge of healthy foods to the in-store information search process.

A consumer's level of OK and SK may affect the way he or she seeks information (Park *et al.*, 1994). Consumers must use knowledge during the external information search to minimise risk probability and increase healthier choices (Bruwer *et al.*, 2017; Chocarro *et al.*, 2009; Moorthy *et al.*, 1997). Individuals who make healthier food-purchasing decisions tend to have better food-related knowledge (Grunert *et al.*, 2010; Kumar and Kapoor, 2017).

Consumers with lower SK than OK regarding the healthiness of food are more likely to ignore food label information (e.g. ingredient lists, nutritional claims and nutrition labels) before purchasing a product, since they do not understand the complex terminology on food packaging (e.g. claims, ingredients and nutritional values) (House *et al.*, 2004; Soederberg Miller and Cassady, 2015). House *et al.* (2004) and Soederberg Miller and Cassady (2015) also concluded that consumers with high SK might make unhealthy food choices due to overconfidence.

Moreover, research has shown that although consumers may have higher levels of education, they do not always have accurate knowledge to understand and interpret food label information correctly (Drichoutis *et al.*, 2005).

#### *External influences during the in-store information search for food products*

Sociocultural influences, such as religion, age and gender, may influence how a person experiences external influences (Burton *et al.*, 2017; Ling and Yazdanifard, 2015). Health-related conditions, changing the health status of a household member, and religious dietary requirements force W-FCs to be more involved in the information search process. Dietary preferences due to health concerns become a high-involvement purchasing decision (Prinsloo *et al.*, 2012). Numerous different formats of product-related information contribute to consumers' in-store experiences (Dörnyei *et al.*, 2017). These external factors include price (Dörnyei *et al.*, 2017), brands (Sang *et al.*, 2018), sociocultural factors (Prinsloo *et al.*, 2013), public policy guidelines (Dörnyei *et al.*, 2017), promotional and advertising influences (Martin and Morich, 2011), product assortment and positioning (De Menezes, 2018) and marketing (Prinsloo *et al.*, 2012). According to Dörnyei *et al.* (2017), consumers do not conduct an in-depth information search before purchasing frequently used food products. It is essential to investigate external influences and to describe how and to what extent W-FCs are using these during the in-store information search process.

#### *In-store situational influences*

Product price plays a significant part in whether a consumer will or will not buy a product (Bruce *et al.*, 2015; Thienhirun and Chung, 2017). Price-sensitive and time-pressed consumers are less inclined to use food label information, since price and nutritional information are competitors when searching for information in-store (Dörnyei *et al.*, 2017; Drichoutis *et al.*, 2005). Price and brand loyalty are two of the main factors used when searching for product-related information (Benoit *et al.*, 2019; Dörnyei *et al.*, 2017). Some consumers place a premium on brands with a healthy image, assuming these to be healthier to consume (Verbeke, 2008). When being exposed to a limited variety of brands, consumers search for external attributes such as price, nutritional value, appearance, taste and brand name (Dörnyei *et al.*, 2017). However, W-FCs have limited time available to search for and evaluate label information on food in the same product category (Bruce *et al.*, 2017). Therefore, it is not surprising that habitual shopping was found to be popular among time-constrained consumers in Cape Town, South Africa (Koen *et al.*, 2018).

Environmental attributes drive unconscious decisions (e.g. marketing factors such as promotions and advertisements) (Martin and Morich, 2011). Stores use promotions to encourage specific product purchases (Thienhirun and Chung, 2017); however, previous research indicates that

promotion awareness is irrelevant in healthy food categories or when purchasing new products (Nikolova and Inman, 2015; Thienhirun and Chung, 2017). Still, low-income consumers seem to buy healthy food such as fruit and vegetables when in-store promotion is available on these products (Sutton *et al.*, 2019). Conversely, consumers with the knowledge to understand food label information may use the nutritional information on food packaging as a form of product advertisement (Drichoutis *et al.*, 2005).

The in-store, on-shelf assortment and organisation of food products also have an influence on which product a consumer will purchase (De Menezes, 2018). Some consumers appreciate a large variety to choose from (Terblanche, 2018). However, information overload may occur when exposed to a large variety, in which case, consumers may use price and product brand as a quick-pick solution (Dörnyei *et al.*, 2017). A delicate balance needs to be maintained between an overload of choice and enough to choose from in-store before being overwhelmed (Benoit *et al.*, 2019).

A remarkable quantity of product-related information is available in grocery stores when consumers are looking for information, for example product labels, packaging, ingredient lists, logos, quality, visual attractiveness, taste, comfortability and freshness (Drichoutis *et al.*, 2005; Prinsloo *et al.*, 2012; Thienhirun and Chung, 2017). Consumers' knowledge helps them to understand ingredient lists when searching for information (Soederberg Miller and Cassady, 2015). Also, individuals with special dietary requirements or preferences such as vegetarianism may be more aware of food labels than those who do not follow specific diets (Kumar and Kapoor, 2017).

Marketers do not necessarily care how healthy a food product is but rather whether they would make a profit when selling it (Prinsloo *et al.*, 2012). Therefore, R.146 of 2010, a regulation implemented by the South African Department of Health, regulates nutritional information, claims made on food and food labels on product packaging (Department of Health, 2010; South African Association for Food Science and Technology, 2014) to protect consumers against false or misleading health-related information. Consumers with a lack of knowledge regarding healthiness of foods tend to make food purchases that do not meet their desired dietary requirements (FAO, 2018; Soederberg Miller and Cassady, 2015). Consumers who lack interest in nutrient claims may be caused by inadequate knowledge and understanding when reading food labels (Koen *et al.*, 2018). Granting that some consumers use food label information to make healthier food-purchasing choices, they sometimes face challenges if they lack the necessary education to make informed choices (Kumar and Kapoor, 2017; Soederberg Miller and Cassady, 2015). The tendency of women from low-income households to purchase cheaper, unhealthy food (Thiele *et*

*al.*, 2017:13; Jacobs and Pavavic, 2015) necessitates public policy guidelines for healthier food choices (Dörnyei *et al.*, 2017).

### *Public policy guidelines*

Worldwide, consumers' health awareness drives them to improve their food selection (Department of Health, 2015). Nevertheless, a lack of interest, time constraints and insufficient money have been identified as barriers when searching for information; however, in a study among health-conscious metropolitan consumers in South Africa, respondents indicated a preference for using food labels to search for healthy food products (Bosman *et al.*, 2014). Moreover, previous research proves that lower daily consumption of the dietary recommended amount of fruit and vegetables among consumers with lower incomes (Sutton *et al.*, 2019). The implementation of the of Sugar Tax (HPL 2018) and Mandatory Sodium Reduction (R.214 of 2013) regulations in South Africa have increased awareness of specific nutrient intake (Griffith *et al.*, 2017; Hunter College New York City Food Policy Center, 2017; World Health Organisation, 2018) and attempt to improve overall consumer health (Dörnyei *et al.*, 2017). Knowledge is an essential aspect of healthy food choices, and policies to promote healthier food choices are vital. Thus, this study is important to gain an understanding of the role of knowledge and the influence of external cues on consumers' information search and decision making for healthier HFFPs.

### **Methodology**

The study complied with all ethical requirements as approved by the Health Research Ethics Committee of the North-West University (NWU-00136-18-S1). We employed a descriptive, cross-sectional survey design using purposive sampling. The inclusion criteria for sampling entailed South African women who are employed full-time and participate in shopping for groceries. The online SurveyMonkey® questionnaire distributed on South African Facebook groups was completed voluntarily and anonymously by respondents who met the inclusion criteria.

We developed the questionnaire consisting of questions on the following: (A) demographics and general information; (B) basic OK and (C) basic SK of W-FCs regarding the healthiness of HFFPs; (D) the importance attached to external influences during the pre-purchase information search of HFFPs; and (E) the extent of the information search based on health-related food label information in which W-FCs engage for HFFPs. Since there was no existing questionnaire regarding this specific research theme, we had to develop a new five-part questionnaire for the study by consulting the literature on the research topic and related fields. Moreover, a statistical consultant accessed the questionnaire to ensure that the questions were accurate and sufficient. Cognitive interviews were conducted with women from different demographical and geographical

backgrounds to pre-test the appropriateness of the research instrument and to ensure that the time for completion did not exceed 15 minutes.

Experts in the fields of consumer and food sciences established face and content validity of the questionnaire. We determined construct validity using EFA (principal axis factoring and Oblimin rotation) on the five-point Likert scales for Sections C and D, a three-point Likert scale for Section D and on the percentage of correct or incorrect responses applicable to Section B. The factors extracted with EFA generated acceptable Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) values greater than 0.7 (KMO = 0.721 - 0.935), indicating significant correlations and an appropriate sample size (Field, 2009). Also, most of the factors were within the recommended inter-item correlation range of 0.15 and 0.55 (Clark and Watson, 1995). However, allergens, claims and nutrient limits had inter-item correlations above 0.65 (see Table 1). Construct validity was confirmed with CFA.

Cronbach alpha values determined the internal reliability of factors extracted by the EFA. Almost all of the factors showed acceptable internal reliability (Cronbach's alpha value = 0.64 - 0.96); however, OK measured at 0.58, just below 0.60. According to Malhotra (2010), Cronbach alpha values of 0.60 points to satisfactory reliability. Three statistical goodness-of-fit indices induced from three different classes measured the fit of the CFA model, namely Chi-square statistic divided by degrees of freedom ( $X^2 / df$ ), root mean error of approximation (RMSEA) and comparative fit index (CFI).

Statistical analysis was conducted with IBM® SPSS® Version 25, except for the CFA and structural equation modelling (SEM), which were done using IBM® SPSS® AMOS 25.0. Descriptive statistics were determined for all variables, including means, frequencies and percentages. The sample was large enough that when means were calculated, the central limit theorem indicated that the mean values were distributed satisfyingly, whereas Spearman's rank-order correlations were determined.

Only correlations with medium ( $r = 0.3$ ) and large (0.5) effect sizes were reported, indicating tendencies and practical significance. SEM was used to test the mediating effect of knowledge (objective and subjective) regarding the healthiness of food on the importance of external influences on their pre-purchase information search for HFFPs, using the same statistical guides as indicated for CFA. The standardised regression weight ( $\beta$ -values) was used to specify the importance of the relationship between each identified factor (Field, 2013).

## Results and discussion

### *Demographic and general information*

The majority (81.2%) of W-FCs in this study (N = 223) were younger than 45 years, while 84.3% owned a post-school or postgraduate qualification. The respondents were mostly from smaller households with 65.5% presenting single-income households. More than half of the respondents (52.0%) did not have children, and 40.4% had one or two children. More than half (58.7%) of the respondents' monthly income after deductions was between ZAR6 000 and ZAR21 000 ( $\approx$ 408 US\$ – 1 430 US\$), with 64.6% having a monthly food expenditure between ZAR2 000 and ZAR5 000 ( $\approx$ 136 US\$ – 340 US\$) (data not shown in a table).

Almost half of the sample (53.8%) purchased food once or twice per week, rather than once a month (8.1%). In-store, most of the respondents spent only 16 to 30 minutes (41.7%) on purchasing food products, implying restricted time available to search for information during food purchasing. A total of 4.5% of the respondents spent more than 45 minutes on food purchases. Almost a quarter (26.0%) of the sample rated themselves as “very health-conscious”, and 65.0% as “somewhat health-conscious”. However, only 19.3% followed a specific diet. These respondents mainly followed particular diets for reasons including weight management (23/43), low carbohydrate diets (18/43) and fat- or cholesterol-related (13/43). Nine respondents indicated that they followed a ketogenic diet.

### *Objective knowledge about the healthiness of high-frequency food products*

For most OK-question, the respondents' varied between 81.6% and 100% correct answers. Construct validity with all items included could not be obtained; therefore, three items showing low correlations with the total ( $r = <0.1$ ) were excluded. These food items in the questionnaire were, however, regarded as unique items, namely OK regarding animal fat, dairy and vitamins respectively. The remaining OK items (factor OK: healthiness of food) showed a Cronbach's alpha of 0.58, thus showing internal reliability since Malhotra (2010) has shown that a Cronbach alpha of 0.6 is acceptable. A summary of the OK factor and unique items is presented in Table 1. The overall factor score for “OK: healthiness of food” was 82.4%. The mean values of the three unique items showed that the respondents had 92.4% correct responses regarding vitamins, 73.1% regarding the restrictions when consuming animal fats and 65.9% concerning the consumption of dairy products. OK is essential to make reliable food-purchasing decisions (Soederberg Miller and Cassady, 2015). Based on the 82.4% score on “OK: healthy food”, the W-FCs from our study should theoretically be able to make informed choices; however, they might have problems with making healthier decisions regarding dairy products.

**Table 1: Summary of the different factors extracted with EFA**

Questionnaire Section	Factors	Mean inter-item correlation <sup>#</sup>	Cronbach's Alpha ( $\alpha$ ) <sup>##</sup>	Mean factor score <sup>###</sup>	Standard deviation
\$Objective knowledge (OK)	Healthiness of food	0.07	0.58	82.43	15.86
	Unique item: Animal fat	N/A	N/A	73.09	44.45
	Unique item: Dairy	N/A	N/A	65.92	47.51
	Unique item: Vitamins	N/A	N/A	92.38	26.60
Subjective knowledge (SK)	Nutrient intake limitations	0.45	0.85	3.82	±(0.63)
	Frequently consumed healthy foods	0.41	0.81	4.03	±(0.55)
	Visual aspects	0.44	0.69	2.56	±(0.95)
External influences	Price and product compare	0.31	0.64	3.53	±(0.69)
	Convenience	0.34	0.72	3.74	±(0.71)
	Unique variable: Product brand	N/A	N/A	2.97	±(1.19)
	Unique variable: Family need exclusion	N/A	N/A	3.61	±(1.28)
	Unique variable: Children's purchasing requests	N/A	N/A	3.07	±(1.29)
Information search	Nutritional value and ingredients	0.55	0.96	2.54	±(0.84)
	Expiry date	0.49	0.91	3.30	±(0.69)
	Allergens	0.76	0.96	2.17	±(1.06)
	Claims	0.66	0.96	2.19	±(0.93)

<sup>#</sup> Inter-item correlations 0.15-0.55 (Clark and Watson, 1995)

<sup>##</sup> Cronbach's  $\alpha \geq 0.60$  (Malhotra, 2010)

<sup>###</sup> Mean factor score measurement

<sup>\$</sup>OK = % correct

<sup>\*SK</sup> scale 1: Strongly disagree; 2: Disagree; 3: Neither agree nor disagree; 4: Agree; 5: Strongly agree

<sup>\*\*</sup> External influence scale 1: Unimportant; 2: Of little importance; 3: Moderately important; 4: Important; 5: Very important

<sup>\*\*\*</sup> Information search scale 1: Not at all; 2: To a small extent; 3: To a moderate extent; 4: To a large extent

N/A: Not applicable for unique items

### *Subjective knowledge of working female consumers of the healthiness of high-frequency food products*

EFA assisted in identifying two SK factors, namely “nutrient intake limitations” and “frequently consumed healthy foods”, with mean scores of 3.82 and 4.03 respectively (where 1 = strongly disagree; 5 = strongly agree) (Table 1). “Nutrient intake limitations” indicated a Cronbach alpha of 0.85 and “frequently consumed healthy foods” indicated a Cronbach alpha of 0.81, confirming internal reliability. Thus, the respondents in the study were reasonably confident with their SK of the healthiness of HFFPs, as supported by these two factors.

According to Gomez *et al.* (2017), if consumers deem to have SK regarding nutrition, they tend to engage less in heuristic thinking; therefore, the W-FCs in the present study would not necessarily be overwhelmed by an abundance of food product information. Since women face immense pressure to take care of the health of their household members (Elliot and Bowen, 2018), their SK regarding healthy foods is higher, possibly because they may believe that they know the healthiest way by which to feed their family. Moreover, the education and income levels of the respondents from the present study was high. However, according to some authors, if consumers’ SK is higher than their OK, they may make overconfident food choices, which are, in turn, bad for their health (Soederberg Miller and Cassady, 2015). However, this is where food regulations may play a crucial protecting role in consumers’ health.

### *Importance attached to external influences during pre-purchase information search of high-frequency food products*

Four factors were extracted, but one factor did not yield satisfying reliability. This factor consisted of three items showing low correlations with the total score ( $r < 0.1$ ) and were regarded as unique items, namely “product brand”, “family need exclusion” and “children’s purchasing requests”. The remaining items yielded three reliable factors, as depicted in Table 1.

The factor “convenience”, with a Cronbach alpha of 0.72, was the most important external influence (mean = 3.74; important) to the respondents in our study in accordance with the higher income of the sample and their limited time. Our finding is also supported by Nandonde and Kuada (2018), showing that convenience is an essential external attribute for W-FCs in Tanzania (Africa) who have little time to purchase food due to long working hours. Similarly, the factor “price and product comparison” has also been rated as important (mean = 3.53; where 1 = unimportant; 5 = very important) with a Cronbach’s alpha of 0.64. Consumers use price and product brands when they feel overwhelmed by in-store information; therefore, they tend to choose products that best suit their budgets (Dörnyei *et al.*, 2017; Koen *et al.*, 2015). In a similar vein, Thienhirun and

Chung's (2017) findings show that price plays a significant part in whether a consumer will purchase a product or not.

Although the unique variable "family need exclusion" was deemed important (mean = 3.61), the respondents regarded "children's purchasing requests" (mean = 3.07) and "product brand" (mean = 2.97) as moderately important, implying that women would take the needs regarding health aspects into consideration when shopping for food (Elliot and Bowen, 2018; Raskind *et al.*, 2017) rather than their children's food-purchasing requests or product brand. "Visual aspects" (mean = 2.56) of frequently purchased foods were of moderate importance to the respondents (Cronbach's alpha of 0.69), showing that this marketing effort is not as relevant to the W-FCs in our study, who are time-constrained and on a budget wanting to purchase HFFPs for their household, as it might be to other consumers. In contrast, Haase *et al.* (2018) state that visual aspects (e.g. packaging, text and illustrations) are important to consumers in Germany when purchasing food products.

#### *Extent of information search for high-frequency food products based on health-related food label information*

The information search yielded four reliable factors, ensuring construct validity (Table 1). The factor "expiry date", with a Cronbach alpha of 0.91, was the most used information (mean = 3.30; to a moderate extent) by the respondents in the study. "Nutritional value and ingredient lists" (Cronbach's alpha of 0.96) were only used to a moderate extent (mean = 2.54; where 1 = not at all; 4 = to a large extent). Potential reasons for this may be a lack of time or habitual purchasing behaviour. It was further noted that both "allergens" (mean = 2.17; Cronbach's alpha = 0.96) and "claims" (mean = 2.19; Cronbach's alpha = 0.96) were also used to a small extent, potentially indicating a lack of trust in the claims made on food labels. This lack of trust in claims has also been indicated by Limbu *et al.* (2019). Koen *et al.* (2015) found that South African consumers in Cape Town distrusted most food label information (i.e. allergens, expiry dates, health benefits, quality guarantees and ingredient lists), although we did not explicitly test this in our study.

#### *The possible mediating role of knowledge of working female consumers in the effect of external influences on consumers' pre-purchase information search*

Spearman's rank-order correlations identified the associations between the different factors and unique items (Table 2). Only correlations that were  $r \geq 0.25$  are discussed to indicate medium and large effect sizes, presenting tendencies and practically significant associations respectively, where  $r = 0.1$  (small),  $r = 0.3$  (medium) and  $r = 0.5$  (large) (Ellis and Steyn, 2003). The findings revealed tendencies of correlations between the external factor of "family (member's) need for exclusion" of particular ingredients for health reasons and respondents' SK of "frequently consumed healthy foods" ( $r = 0.31$ ) and "nutrient intake limitations" ( $r = 0.29$ ) respectively. These

respondents' need to cater to family members' needs when purchasing foods might have affected their knowledge regarding healthy foods and nutrient limitations. Wijayaratne *et al.* (2018) have shown that women believe they know what the healthiest manner is to feed their families.

**Table 2: Spearman's rank-order correlations between working female consumers' knowledge, external influences and information search process**

CORRELATIONS*	Subjective knowledge: healthy foods#	Subjective knowledge: nutrients limit##	External influences: Visual aspects	Information search: Allergens	Information search: Claims	Information search: Nutrients and Ingredients
<i>How health-conscious are you?</i>	-	0.245	-	-	0.275	0.336
<i>External influences: Family member's need for exclusion of particular ingredients (due to health concerns)</i>	0.309	0.291	-	0.261	-	-
<i>External influences: Children's food-purchasing requests</i>	-	-	0.246	-	-	-
<i>Information search: Nutrients and Ingredients</i>	0.360	0.383	-	-	-	-
<i>Information search: Claims</i>	-	0.273	-	-	-	-
<i>Objective knowledge###</i>	-	0.298	-	-	-	-

\* Only medium and large effect size correlations reported;  $P < 0.05$ ; values  $\leq 0.25$  were not reported

# Subjective knowledge regarding the healthiness of food

## Subjective knowledge regarding nutritional limitations

### Objective knowledge

small effect size:  $r = 0.1$ ; medium effect size:  $r = 0.3$ ;

large effect size:  $r = 0.5 \leq$

The respondents' general OK regarding the healthiness of food tended to correlate with their SK regarding "nutrient intake limitations" ( $r = 0.30$ ), showing a relationship between their perceived and their actual knowledge of some healthiness aspects of food. Several tendencies of correlations between SK factors and information search factors were shown. Both SK of "frequently consumed healthy foods" ( $r = 0.36$ ) and "nutrient intake limitations" ( $r = 0.38$ ) had tendencies to correlate with the information search based on "nutrients and ingredients." However, SK of "nutrient intake limitations" also correlated with "information search" based on "claims" ( $r = 0.27$ ). These findings confirm that the respondents who believed they knew about the healthiness of food tended to use particular food label information during their in-store

information search. Soederberg Miller and Cassady (2015) confirm that consumers reporting to use food label information more often have high levels of SK regarding the healthiness of food.

Similar to their SK factors, the respondents' self-perceived health consciousness also tended to correlate with their information search for "nutrients and ingredients" ( $r = 0.34$ ) and "claims" ( $r = 0.28$ ) respectively. However, where possible life-threatening conditions such as allergies are present, the results showed a medium-sized correlation ( $r = 0.26$ ) between respondents taking a family member's health into consideration when purchasing food and an in-store information search based on food labels to exclude any "allergens". Therefore, with medium-sized correlations ( $r = 0.25$ ) between the health consciousness of the respondents and SK of "nutrient intake limitations", it is evident that there is also a relationship between the respondents' subjective opinion on their knowledge of "nutrient intake limitations" and their opinion on how health-conscious they are.

*Mediating role of knowledge in the effect of external influences on consumers' pre-purchase information search*

For the study, an SEM was conducted to identify the mediating role of knowledge in the effect of external influences during the pre-purchase information search for HFFPs. Three SEM models have been created. Table 3 below summarises the  $x^2 / df$  value, CFI, RMSEA and confidence interval (CI) of each model.

**Table 3: Fit indices for the SEM**

	<i>Model 1<sup>#</sup></i>	<i>Model 2<sup>##</sup></i>	<i>Model 3<sup>###</sup></i>
$x^2 / df$	1.555	1.683	1.637
CFI	.963	.957	.958
RMSEA (CI)	.050 (0.026-0.071)	.055 (0.032-0.075)	.054 (0.030-0.075)

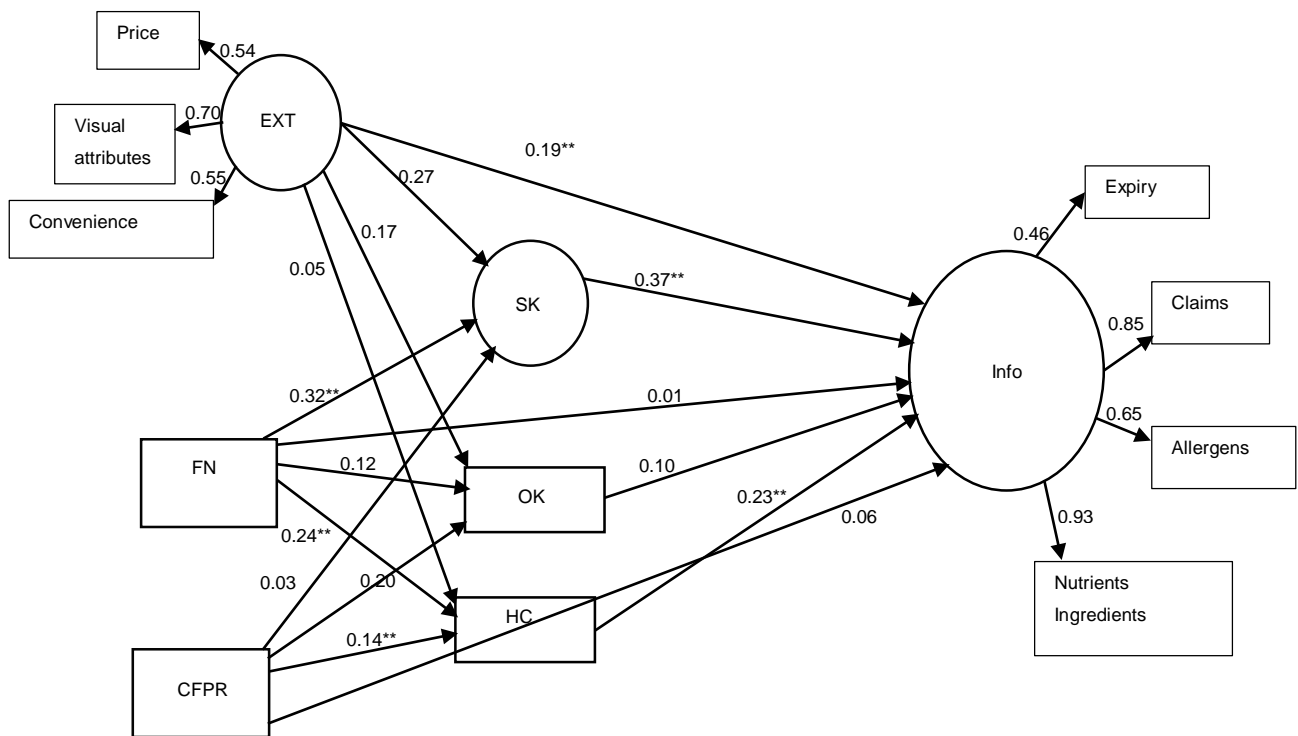
<sup>#</sup>first proposed model that explains the mediating effect of knowledge (OK, SK, HC) on the information search process.

<sup>##</sup>second proposed model that explains the mediating effect of knowledge (SK, HC) on the information search process.

<sup>###</sup>final model that explains the mediating effect of knowledge (SK, HC) on the information search process for statistical significant regression paths only.

As a first model (Figure 1), all OK (healthiness of food, animal fat, dairy and vitamins), SK (nutrient intake limitations and frequently consumed healthy foods), external influence (visual aspects, price and compare, convenience, product brand, family need exclusion and children's purchasing requests) and information search (nutritional value and ingredients, expiry date, allergens and claims) factors and unique items had been included, which showed medium or large effect size correlations with the information search factors. According to Table 3, Model 1 had a  $x^2 / df$  value lower than 5, therefore showing a good model fit. Also, the model achieved an acceptable CFI

value, as this value should ideally be  $\geq 0.9$ , as suggested by Mueller (1996). With an RMSEA beneath 0.1, the findings confirmed a good fit (Blunch, 2008). Seeing that all three fit indices used, showed a good fit, the model fit for the factors in the questionnaire was good. However, this model implied that it OK was not a mediator as no statistical significant regression paths were observed to and from OK. It was therefore decided to remove OK from the model.

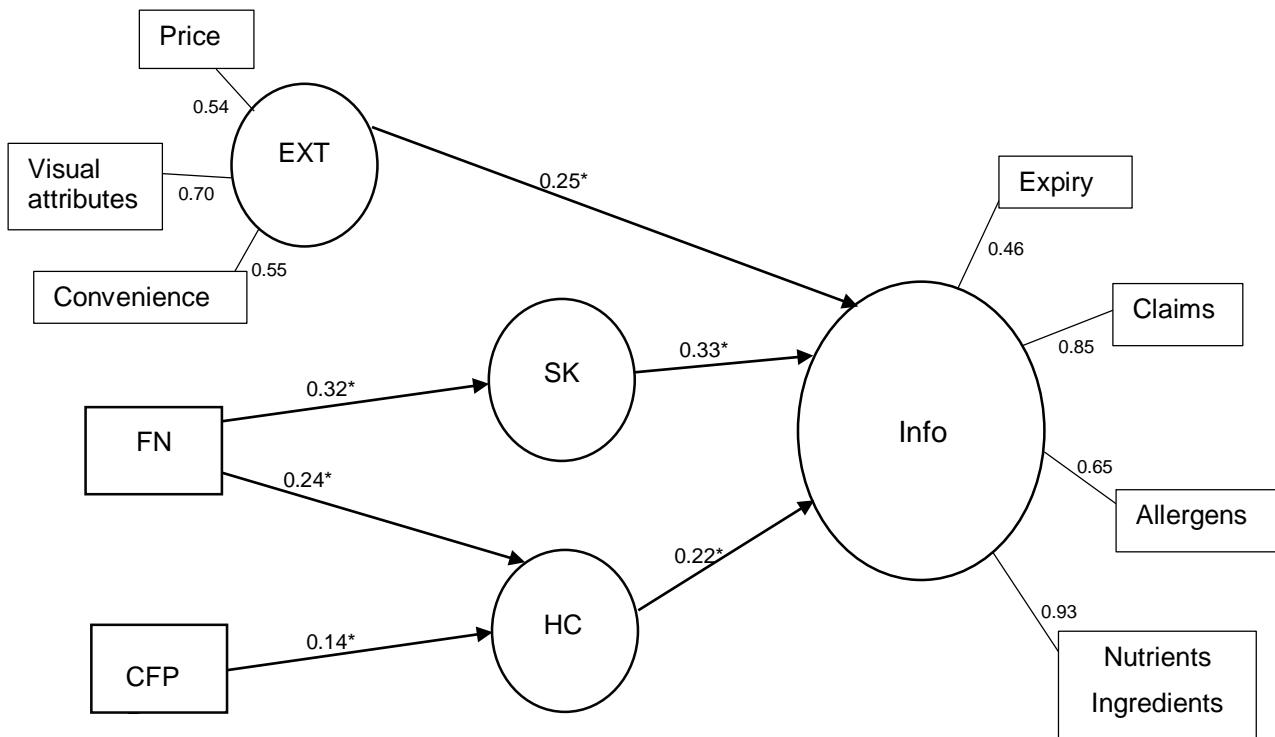


**Figure 1 First proposed model that explains the mediating effect of knowledge on the information search process, with  $\beta$ -values indicated.**

EXT = external influences; FN = family needs; CFPR = children’s food-purchasing requests; SK = subjective knowledge; OK = objective knowledge; HC = level of health consciousness; Info = information search

The second model had good model fit indices and regression weights similar to that of Model 1. It was decided to improve the model further by removing all regression paths that were not statistically significant ( $p > 0.05$ ) in Model 3. The fit indices for Model 3 (Figure 2) also pointed to a good fit for the proposed model, as seen in Table 3. Children’s food-purchasing requests were fully mediated by the respondents’ level of health consciousness, while family needs were fully mediated by both HC and SK in influencing the information search. The analysis of the effect of SK on the information search and the indirect effect of family needs leads us to conclude that SK had a mediating effect on the relationship between family needs and the information search process. Ahmad and Nordin’s (2014) research confirms that SK is a strong motivational driver.

However, other external factors, as seen in Figures 2, directly influence the information search without being mediated by SK or health consciousness.



**Figure 2 Final model that explains the mediating effect of knowledge on the information search process, with  $\beta$ -values indicated.**

EXT = external influences; FN = family needs; CFPR = children’s food-purchasing requests; SK = subjective knowledge; HC = level of health consciousness; Info = information search

**Conclusion**

This study aimed to describe the basic OK and SK of W-FCs in South Africa regarding the healthiness of food and the effect of this knowledge on the importance of external influences on their pre-purchase information search for HFFPs. The population of the study consisted of W-FCs between the ages of 18 and 65, of which 65% indicated that they were only somewhat health-conscious. Their monthly food expenditure budget might range from as low as R1 000 to R6 000, and it is presumed that apart from income, the number of children in the household has an impact on the expenditure, as 48% of the respondents have one or more children in their homes. Most of this population group (91%) indicated that they spent less than 45 minutes in-store weekly to purchase HFFPs (e.g. milk, eggs and bread).

The results showed that the respondents' OK (mean = 82.43%) and SK (frequently consumed healthy foods mean = 4.03, and nutrient intake limitations mean = 3.82) regarding the healthiness of HFFPs were high. The respondents indicated price and comparing the variety among products, along with convenience, as the most important external influences when searching for information on HFFPs in-store. However, visual attributes were indicated to be of lesser importance. They mostly made use of the expiry date, nutritional value and ingredient list on food packaging when looking for information on a food product regarding health-related aspects.

External influences (price, visual attributes and convenience) were not mediated by OK, HC or SK but had a direct effect on the in-store information search process based on the labels of HFFPs, which might indicate that the respondents did not use their knowledge when external aspects influence their in-store information search process for food products. OK had no mediating effect on the pre-purchase information search process, which implied that the respondents did not in actuality use the knowledge they had primarily stored in their memory to purchase food products. Contradictorily, SK had a mediating effect on the respondents' pre-purchase information search influenced by an external attribute, namely the needs (e.g. allergens and those due to diabetes) of members in their household, meaning that the respondents made use of the knowledge that they think they have regarding the healthiness of food to purchase products to keep their households healthy. HC mediated family needs and the respondents' information search. The SEM which was designed based on the findings of the study (Figure 2) will provide future researchers with a basic guideline to improve W-FCs' food-purchasing experience.

Since the study used purposive sampling, the results cannot be generalised to all W-FCs in South Africa. However, the study provides a baseline of these women's OK and SK regarding the healthiness of food, their use of information on food labels in-store and the external influences that have an impact on their information search process. A more comprehensive study regarding different geographical groups, working groups and ethnicities is recommended. This study helped to give recognition to W-FCs in South Africa as a neglected researched group who are a large part of the population. It is crucial to notice that the most significant finding of the study, as seen in the SEM, is that the respondents were motivated to use their SK when shopping for HFFPs in-store due to their need to act as gatekeepers and abide by their family needs.

### **Conflict of interest**

The researcher reported no conflict of interest.

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## **CHAPTER 5: CONCLUDING CHAPTER**

### **5.1 INTRODUCTION**

Working female consumers (W-FCs) are responsible for taking on two primary responsibilities – as caretaker with multiple roles in the household and being employed (Van der Merwe *et al.*, 2019). Women are still mainly in control of their family's food choices and eating patterns. Multiple tasks of W-FCs result in limited time for searching for information during food purchasing; thus the use of heuristic measures during food purchases is increased. Measuring the importance of external influences during the in-store food label search for high-frequency food products (HFFPs) is necessary to understand what particular influences W-FCs regard as important when they are making purchasing decisions. These external influences may include the marketing mix (product, price, promotion and position) and other factors such as time, income and family commitments.

The study aimed to explore whether, and to what extent, W-FCs experienced different influences during the pre-purchase information search process and to determine whether their knowledge allowed them to manage these influences to support their information search based on health-related food label information. As there is an obvious gap in the current literature regarding the association between food knowledge and external influences during W-FCs' pre-purchase information search regarding HFFPs, the study provides valuable insight into consumers' decision making about food.

### **5.2 MAIN INSIGHTS FROM THE RESEARCH STUDY**

The literature provides insight into several factors involved during consumers' food decision-making process. Consumers are challenged with personal circumstances that may directly or indirectly influence their food choices. These circumstances include work-related demands, budget and time management and the composition and needs of the family. Informed healthy food decisions are based on consumers' health motivation and knowledge (Soederberg Miller & Cassady, 2015:210). Consumers with higher levels of subjective knowledge (SK) regarding nutrition tend to engage less in heuristic thinking since they are not overwhelmed by an abundance of different product brands (Gomez *et al.*, 2017:23). Informed decision making is essential when any household member has health-related conditions. The most valuable tool with regard to food product information is the food label. Ample research on food label usage is available and indicates that the expiry date, the ingredient list and health claims are often used during the information search process (Bosman *et al.*, 2010:520, Kumar & Kapoor, 2017:224; Peters-Teixeira & Badrie, 2005:512). During the pre-purchase information search process, consumers search for information internally (based on their stored memory and perceptions) and externally (sociocultural environment and marketing efforts). However, there is not enough

research to describe the use of external influences by South African W-FCs while shopping for food in-store. Moreover, confirmation that there is a lack of research in the consumer sciences field regarding the influence of external factors on consumers when shopping for food depending on their level of knowledge is evident throughout the literature review of the study.

### **5.3 CONCLUSION FROM THE FINDINGS OF THE STUDY**

#### **5.3.1 Description of the sample**

The majority of the W-FCs in the study were younger than 45 years (81.2%), and 77.6% had a post-school qualification. The demographic profile of the study indicated an average income after deductions of R6 000 to R20 000, and 23% of the respondents were from single-income households, while 65.5% were from dual-income households. Monthly household grocery expenditure varied between R1 000 and R5 999. The respondents spent an average of 16 to 30 minutes in-store to look for food products. Households that claimed to have children, mostly had one or two children younger than 18. Most of the respondents were somewhat health-conscious.

#### **5.3.2 Describing the basic knowledge of working female consumers regarding the healthiness of high-frequency food products**

The results showed that the W-FCs' objective knowledge (OK) and SK regarding the healthiness of HFFPs were high. The overall factor score for OK of the healthiness of food was 86%. The W-FCs indicated lower OK of animal fat and dairy. This can be confirmed by healthiness currently being a food trend amongst numerous consumers although there is much controversy regarding different diets in the South African media. The respondents' SK regarding both nutrient intake limitations (mean = 3.82) and frequently consumed healthy foods (mean = 4.03) indicated confidence in their knowledge of the healthiness of foods. These findings of SK from the study indicated that the respondents felt that they had some level of knowledge, which might help them to make healthier food-purchasing decisions. Knowing that these respondents in South Africa have high SK regarding the healthiness of HFFPs helps to narrow some of the gaps in the consumer sciences research field regarding the connotation between food knowledge and external influences used during W-FCs' pre-purchase information search regarding HFFPs.

### **5.3.3 Describing the importance that working female consumers attach to different external influences during their pre-purchase information search of high-frequency food products**

The most important external influences when searching for information of HFFPs in-store were grouped as three factors, namely convenience (mean = 3.74), price and product comparisons (mean = 3.53) and visual attributes (mean = 2.56), which were moderately important to the respondents of the study. Convenience was the most important influence, possibly due to a lack of time, while price and comparing products supported the essence of household budgets. Moreover, three unique items were identified, namely family need exclusion (mean = 3.61), children's purchasing requests (mean = 3.07) and product brand (mean = 2.97). However, the respondents did not always adhere to their children's food-purchasing requests (49% of children's food-purchasing requests granted) to the same extent as reported research. These results affirmed that the respondents, who were the gatekeepers of their households and chose what food entered their home, had an adequate amount of knowledge to make the best food purchases to support the health of the individuals in their home.

### **5.3.4 Describing the extent of the pre-purchase information search based on health-related food label information working female consumers engage in for high-frequency food products**

As food labels contain essential information regarding claims, allergens, the expiry date, nutritional value and ingredients, it was essential to measure to what extent W-FCs use these aspects. The respondents mostly made use of the expiry date (mean = 3.30), nutritional value (mean = 2.54) and ingredients (mean = 2.54) on food packaging when looking for information on a food product regarding health-related aspects. Claims (mean = 2.19) and allergens (mean = 2.12) did not show frequent usage among the respondents, indicating that they only used claims and allergens when it was a crucial information search trait to them. Another reason for the lacking use of claims may be linked to previous South African research findings stating that consumers do not trust claims made on food labels (Koen *et al.*, 2015:14).

### **5.3.5 Determining the mediating role of objective and subjective knowledge of working female consumers regarding the healthiness of food in the effect of external influences on female consumers' pre-purchase information search of high-frequency food products**

From a marketing perspective, although most external factors influenced the respondents' in-store information search process, there was no evidential research to support whether they used their knowledge when influenced by external factors from a consumer sciences perspective, making the study a breakthrough in this study field. Statistical analysis revealed that external influences (price, visual attributes and convenience) were mediated by neither OK nor SK, but had a direct effect on the in-store information search process, influencing the use of labels of HFFPs. These results contradict other research that had indicated a positive effect of SK on the use of external factors (price, brand and origin) (Chocarro *et al.*, 2009:179, 184). The results of the present study may differ due to the difference in demographical groups that participated in the studies. Previous studies included both female and male participants with different employment roles, whereas this study only focussed on women who work full-time. OK had no mediating effect on the pre-purchase information search process, but SK had a mediating effect on the needs (allergens and those due to diabetes) of the respondents' family members (FN→SK;  $\beta = 0.32$  and SK→Info;  $\beta = 0.33$ ). In addition, although it was not the intention of the study, it was found that the level of health consciousness of the respondents had a mediating effect on the needs of their family members and their children's food-purchasing requests (CFPR→HC;  $\beta = 0.14$  and HC→Info;  $\beta = 0.22$ ), providing new insight for future research when engaging in an information search for food label information.

It can thus finally be concluded from the study that the respondents who had reasonably good SK or self-rated health consciousness were more likely to perform an information search using food label information when being exposed to the external influence of family needs for a health concern. Thus they apply disease prevention and management. Similarly, health consciousness would assist the respondents in managing children's food-purchasing requests in order to perform a label-based information search. Price, convenience and visual attributes were the most important situational factors influencing food choices. When these external influences are considered as of high importance by the respondents, the information search would not be mediated by SK or health consciousness. In this case, the search for information may be sub-optimal and based on heuristics, the familiarity of the product (e.g. HFFPs) or even the household budget.

## **5.4 LIMITATIONS AND RECOMMENDATIONS**

As the data had been collected from a purposively selected sample of W-FCs (N = 223) using online questionnaires, the results could not be generalised to the South African population. However, it did broaden the understanding regarding some South African women who work full-time. An extension of the study will be valuable to confirm the results of the study. A more inclusive study regarding ethnicity, income level, education level, employment type (i.e. full-time, part-time, self-employed, contract) and geographical aspects is recommended for follow-up research. Although it was not the aim of the study to measure the respondents' health consciousness with the use of external influences, there was a clear link; therefore, an opportunity for future research was identified. This research may contribute to future public health initiatives in sustaining or improving well-being. During the data collection, difficulties were experienced regarding the respondents' response rate and completion of the survey. Hence, it would be recommended to use more online platforms than just Facebook and motivate respondents to complete the survey by giving incentives.

## **5.5 IMPLICATIONS**

### **5.5.1 Implications for consumers**

The findings of this study will not make a direct impact but only an indirect impact on W-FCs, a neglected group in consumer sciences research although they represent a large proportion of the population. Limited data on their information search process are available. The study based on this non-probable sample exposed the respondents' challenges with time constraints and information overload as external influences, since they mainly made use of convenience and price and product comparisons when searching for information in-store. Moreover, when a family member needed exclusion of specific ingredients, they relied on their SK when searching for information.

The study also revealed that the respondents' level of health consciousness played a role during the in-store information search process for HFFPs. The results of the study may be used for future research to help understand and support this specific demographic group of South Africans and to motivate campaigns to educate working women regarding healthier food choices when shopping for HFFPs to improve their confidence during making food purchases for their households. Therefore, the results from this study on W-FCs may direct interventions to improve consumers' knowledge and the quality of their pre-purchase information search before purchasing HFFPs.

### **5.5.2 Implications for the field of Consumer Sciences**

This study is beneficial to the discipline of consumer sciences in providing a better understanding of W-FCs' OK and SK, and the importance of external influences, since it was proven that this respondent sample did not make use of their OK or SK when external factors were the main influence. Also, the extent of consumers' pre-purchase information search illustrated different angles women may use to search for information regarding HFFPs in-store. The SEM developed in the study provides future studies with a basis to expand research regarding W-FCs in South Africa. Knowing that SK has a mediating effect between a woman's household needs and the use of information in-store contributes to the understanding of W-FCs' information search process, confirming that the women participating in the study were, in fact, still the gatekeepers of their households in these modern times.

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## ADDENDUM A: QUESTIONNAIRE

Please fill out the following questionnaire by clicking on the most appropriate choice for each question:

Please select yes/no for the following statements:

Statement	Yes	No
I am a female.	1	2
I am employed full-time.	1	2
I am a South African resident.	1	2
I am between the ages of 18 and 65.	1	2
I do grocery shopping for my family/household most of the time.	1	2

### Section A: Biographical and general information

1.1 Please select your age category:

18-25	1
26-35	2
36-45	3
46-55	4
56-65	5

**1.2 Please select your level of education:**

Lower than Grade 12.	1
Grade 12 completed.	2
Post Grade 10 or 12 skills development / occupational training.	3
Grade 12 + diploma/degree.	4
Postgraduate diploma/degree.	5

**1.3 What is your monthly income after deductions?**

R0-R2 999	1
R3 000-R5 999	2
R6 000-R8 999	3
R9 000-R11 999	4
R12 000-R14 999	5
R15 000-R17 999	6
R18 000-R20 999	7
R23 000-R25 999	8
R26 000-R28 999	9
R29 000-R30 999	10
More than R31 000	11
I prefer not to say	12

**1.4 Between what ranges does your household's monthly food expenditure fall?**

R0-R999	1
R1 000-R1 999	2
R2 000-R2 999	3
R3 000-R3 999	4
R4 000-R4 999	5
R5 000-R5 999	6
More than R6 000	7
I am not sure	8

**1.5 How many children live in your household (under the age of 18)?**

0	1
1	2
2	3
3	4
4	5
More than four	6

**1.6 How many adult dependents (over the age of 18) live in your household (not contributing to the household income)?**

0	1
1	2
2	3
3	4
More than 3	5

**1.7 How many people other than yourself contribute to the household income?**

0	1
1	2
2	3
3	4
More than 3	5

**1.8 How regularly do you shop for food products used on a regular basis in your household (e.g. bread, milk, pasta, rice, sugar, maize meal)?**

Once a day	1
Once a week	3
Twice a week	2
Three to five times a week	4
Once every two weeks	5
Once a month	6
Other	7

**1.9 How health conscious are you? Select one:**

Not health conscious at all	1
Somewhat health conscious	2
Very health conscious	3
Extremely health conscious	4

**1.10 How much time do you normally spend in-store to look for food items you buy regularly (e.g. bread, milk, eggs)?**

0-15 minutes	1
16-30 minutes	2
31-45 minutes	3
46-60 minutes	4
More than 60 minutes	5

**1.11 Do you follow a specific diet?**

Yes	1
No	2

**1.12 If yes, please indicate all applicable to you:**

Portion control/weight loss	1
Vegetarian	2
Vegan	3
High-protein diet	4
HALAAL	5
Low-fat diet	6
Banting/ketogenic	7
Low-carb diet	8
Diabetic	9
Low-fat/cholesterol	10
Avoiding particular ingredients/allergens	11
Other (please specify)_____	12

## Section B: Objective knowledge

### 2.1 Choose whether each of the following statements are true/false:

No.	Statements	True	False	I'm not sure	Memorandum (For office use only)
2.1.1	Honey is healthier than white sugar.	1	2	3	N/A
2.1.2	Legumes or pulses such as beans and lentils do not have many useful nutrients.	1	2	3	2 (False)
2.1.3	Fat is always bad for your health.	1	2	3	2 (False)
2.1.4	Restrict the intake of visible animal fats (e.g. fat layer or chicken skin).	1	2	3	1 (True)
2.1.5	If you have eaten high fat foods, you can reverse the effects by eating apples.	1	2	3	1 (True)
2.1.6	Fruit juice is not as healthy as fresh fruit.	1	2	3	2 (False)
2.1.7	Oven baked chicken is healthier than deep fried chicken.	1	2	3	1 (True)
2.1.8	A healthy plate of food should consist of: half plate of meat, a quarter plate vegetables and a quarter plate side dishes (e.g. rice or salad).	1	2	3	1 (True)
2.1.9	A salad dressing made with mayonnaise is healthier than a French salad dressing made with oil and vinegar.	1	2	3	1 (True)

**2.1 Choose whether each of the following statements are true/false: (Continue)**

No.	Statements	True	False	I'm not sure	Memorandum (For office use only)
2.1.10	The same amount of sugar (e.g. 5g) and fat (e.g. 5g) contains an equal amount of kilojoules (calories).	1	2	3	2 (False)
2.1.11	Dairy products (e.g. milk, cheese, and yogurt) must be eaten every day.	1	2	3	1 (True)
2.1.12	The amount of salt in the food you eat does not affect your health.	1	2	3	2 (False)
2.1.13	Oily fish (e.g. salmon, sardines, tuna) contains healthier fats than red meat.	1	2	3	1 (True)
2.1.14	The main health benefit of fruit and vegetables is the supply of vitamins and minerals.	1	2	3	1 (True)
2.1.15	A balanced diet means to eat the same quantities of all food types.	1	2	3	2 (False)
2.1.16	Sources of natural fibre (e.g. oats, whole wheat bread, vegetables) must be eaten every day.	1	2	3	1 (True)

## Section C: Subjective knowledge

3.1 Please indicate your level of agreement with each of the following statements where 1 is strongly disagree and 5 is strongly agree.

*When I look at the following statements, I know a lot about (the health benefits or risks of foods)...:*

No.	Statements	1 Strongly disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly agree
3.1.1	the healthiness of different sugar types (e.g. honey, brown, white sugar).	1	2	3	4	5
3.1.2	the different types of fats and their effect on my health.	1	2	3	4	5
3.1.3	the healthiness of the amount of salt in my food.	1	2	3	4	5
3.1.4	the healthiness of oven baked foods and deep fried foods.	1	2	3	4	5
3.1.5	the healthiness of salads containing different salad dressings.	1	2	3	4	5
3.1.6	the healthiness of legumes/pulses (e.g. beans, lentils) in my diet.	1	2	3	4	5
3.1.7	the healthiness of eating the appropriate amount of different fats.	1	2	3	4	5

**3.1 Please indicate your level of agreement with each of the following statements where 1 is strongly disagree and 5 is strongly agree.**

***When I look at the following statements, I know a lot about (the health benefits or risks of foods)...: (Continue)***

<b>No.</b>	<b>Statements</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	<i>When I look at the following statements, I know a lot about (the health benefits or risks of foods)...:</i>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neither agree nor disagree</b>	<b>Agree</b>	<b>Strongly agree</b>
3.1.8	the healthiness of fresh fruit and fruit juice.	1	2	3	4	5
3.1.9	the importance of eating a variety of foods.	1	2	3	4	5
3.1.11	the healthiness of dairy products (e.g. milk, cheese, yogurt).	1	2	3	4	5
3.1.12	the healthiness of different foods that one should eat daily.	1	2	3	4	5
3.1.13	the foods that provide fibre.	1	2	3	4	5
3.1.14	the different foods to include on a healthy balanced plate of food.	1	2	3	4	5

**3.2 How would you rate your overall knowledge about basic healthy eating?**

Poor	1
Fair	2
Good	3
Excellent	4

## Section D: External influences during a food shopping expedition

4 How important is the following information to you when looking for food products you regularly purchase where 1 is unimportant and 5 is very important.

No.	Statements	1 Unimportant	2 Of little importance	3 Moderately important	4 Important	5 Very important
4.1	The different food product brands (e.g. Nestlé, Kellogg's, Clover, Simba).	1	2	3	4	5
4.2	Family members need exclusion of particular ingredients (due to health concerns, e.g. sugar or allergens).	1	2	3	4	5
4.3	Your child's food purchase request.	1	2	3	4	5
4.4	Other tasks you still have to do today.	1	2	3	4	5
4.5	Time available to do the shopping.	1	2	3	4	5
4.6	Easy access of products in the store (e.g. position on the shelf).	1	2	3	4	5
4.7	Easy/convenient use or preparation of products.	1	2	3	4	5
4.8	Convenient use of the packaging (e.g. reseal, easy storage).	1	2	3	4	5
4.9	The picture of the product on the packaging.	1	2	3	4	5

**4 How important is the following information to you when looking for food products you regularly purchase where 1 is unimportant and 5 is very important. (Continue)**

No.	Statements	1 Unimportant	2 Of little importance	3 Moderately important	4 Important	5 Very important
4.10	The visual attractiveness of the product packaging.	1	2	3	4	5
4.11	Religious claims on the packaging (e.g. HALAAL, Kosher)	1	2	3	4	5
4.12	The price of the food products.	1	2	3	4	5
4.13	Weekly/daily specials (e.g. pamphlets that display discounts).	1	2	3	4	5
4.14	In-store promotions (e.g. tastings, banners).	1	2	3	4	5
4.15	Availability of a variety of a specific product (e.g. different breads).	1	2	3	4	5
4.16	Too much of a variety of products.	1	2	3	4	5
4.17	Too little of a variety of products.	1	2	4	4	5

## Section E: Information search before food product purchasing

5 To which extent do you search for the indicated food label information when you shop for the following food products, where 1 is not at all and 4 is to a large extent?

*I look for this indicated food label information when purchasing food products:*

*\*Please note: Claims include any health, nutritional or other claims (e.g. gluten free, tartrazine free, high fibre, low fat, heart mark, vegetarian, organic, etc.)*

<i>I look for this information on the food label I purchase:</i>	<b>1 Not at all</b>	<b>2 To a small extent</b>	<b>3 To a moderate extent</b>	<b>4 To a large extent</b>
<b>5.1 Dairy (milk, cheese, yoghurt) &amp; eggs:</b>				
a) Nutritional value	1	2	3	4
b) Expiry date	1	2	3	4
c) Ingredients	1	2	3	4
d) Allergens	1	2	3	4
e) Claims	1	2	3	4
<b>5.2 Fresh fruit and vegetables:</b>				
a) Expiry date	1	2	3	4
b) Claims	1	2	3	4
<b>5.3 A staple food (e.g. maize meal, bread):</b>				
a) Nutritional value	1	2	3	4
b) Expiry date	1	2	3	4
c) Ingredients	1	2	3	4
d) Allergens	1	2	3	4
e) Claims	1	2	3	4
<b>5.4 A new food product not previously bought:</b>				
a) Nutritional value	1	2	3	4
b) Expiry date	1	2	3	4
c) Ingredients	1	2	3	4

d) Allergens	1	2	3	4
e) Claims	1	2	3	4

**5 To which extent do you search for the indicated food label information when you shop for the following food products, where 1 is not at all and 4 is to a large extent?**

***I look for this indicated food label information when purchasing food products:***

***\*Please note: Claims include any health, nutritional or other claims (e.g. gluten free, tartrazine free, high fibre, low fat, heart mark, vegetarian, organic, etc.) (Continue)***

<i>I look for this information on the food label I purchase:</i>	<b>1 Not at all</b>	<b>2 To a small extent</b>	<b>3 To a moderate extent</b>	<b>4 To a large extent</b>
<b>5.5 Frozen fruit and vegetables:</b>				
a) Nutritional value	1	2	3	4
b) Expiry date	1	2	3	4
c) Ingredients	1	2	3	4
d) Claims	1	2	3	4
<b>5.6 Beverages (tea, coffee &amp; sodas):</b>				
a) Nutritional value	1	2	3	4
b) Expiry date	1	2	3	4
c) Ingredients	1	2	3	4
d) Claims	1	2	3	4
<b>5.7 Plant based proteins (e.g. soy, dry beans, peas &amp; nuts):</b>				
a) Nutritional value	1	2	3	4
b) Expiry date	1	2	3	4
c) Allergens	1	2	3	4
d) Claims	1	2	3	4
<b>5.8 Fresh or frozen chicken, fish and meat.</b>				
a) Nutritional value	1	2	3	4
b) Expiry date	1	2	3	4
c) Claims	1	2	3	4
<b>5.9 Processed meats (polonies, bacon, sausages, canned)</b>				
a) Nutritional value	1	2	3	4
b) Expiry date	1	2	3	4

**5 To which extent do you search for the indicated food label information when you shop for the following food products, where 1 is not at all and 4 is to a large extent?**

***I look for this indicated food label information when purchasing food products:***

***\*Please note: Claims include any health, nutritional or other claims (e.g. gluten free, tartrazine free, high fibre, low fat, heart mark, vegetarian, organic, etc.) (Continue)***

<i>I look for this information on the food label I purchase:</i>	<b>1 Not at all</b>	<b>2 To a small extent</b>	<b>3 To a moderate extent</b>	<b>4 To a large extent</b>
c) Ingredients	1	2	3	4
d) Allergens	1	2	3	4
e) Claims	1	2	3	4
5.10 Processed convenience food (e.g. canned soup, vegetables, prepared meals).				
a) Nutritional value	1	2	3	4
b) Expiry date	1	2	3	4
5.10 Processed convenience food (e.g. canned soup, vegetables, prepared meals).				
c) Ingredients	1	2	3	4
d) Allergens	1	2	3	4
e) Claims	1	2	3	4
5.11 Cookies, Snacks & Candies				
a) Nutritional value	1	2	3	4
b) Expiry date	1	2	3	4
c) Ingredients	1	2	3	4
d) Allergens	1	2	3	4
e) Claims	1	2	3	4
5.12 Fats (e.g. butter, margarine, olive oil, sunflower oil).				
a) Nutritional value	1	2	3	4
b) Expiry date	1	2	3	4
c) Ingredients	1	2	3	4
d) Allergens	1	2	3	4

e) Claims	1	2	3	4
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## **ADDENDUM B: INFORMED CONSENT FORM**

Private Bag X1290, Potchefstroom  
South Africa 2520  
Tel: +2718 299-1111/2222  
Fax: +2718 299-4910  
Web: <http://www.nwu.ac.za>



### **INFORMED CONSENT DOCUMENTATION for Full-time employed women in South Africa between the ages of 18 and 65 who participate in grocery shopping**

#### **TITLE OF THE RESEARCH STUDY:**

The role of knowledge on the effect of external influences on the food information search of working female consumers.

#### **ETHICS REFERENCE NUMBERS:**

NWU-00136-18-A1

#### **PRINCIPAL INVESTIGATOR:**

Prof M van der Merwe

#### **POST GRADUATE STUDENT:**

Marli Nel

#### **ADDRESS:**

North-West University, 11 Hoffman St, Potchefstroom (Building F15)

#### **CONTACT NUMBER:**

018 299 2470

You are being **invited** to **voluntarily** take part in a **research study** that forms part of a Master's study in consumer sciences. You are free to say no to participate, if so, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part now. If you do choose to withdraw, it would be advised to notify the researcher. **This study has been approved by the Health Research Ethics Committee of the Faculty of Health Sciences of the North-West University (NWU-00136-18-S1) and will be conducted according to the ethical guidelines and principles of Ethics in Health Research: Principles, Processes and Structures (Department of Health, 2015) and other international ethical guidelines applicable to this study. It might be necessary for the research ethics committee members or other relevant people to inspect the research records.**

This study will be advertised on **Facebook** and conducted via **SurveyMonkey®**. The survey will only take approximately **15 minutes** and involves **no cost** to you as participant except for the data that you will be use and therefore you will not be paid to participate. **We plan to describe** the knowledge working female consumers have of healthy foods and how they are influenced by things like product information, price, promotions, monthly food budgets and children during grocery shopping while searching for information on food labels. The **findings of this study** will be used for this study and future more in-depth studies.

You are part of a group that has not been researched enough in South Africa and research is needed to help improve the information search of consumers during grocery shopping. **You also fit the research** because you are a woman, are full-time employed, are a South African resident, participate in grocery shopping, are between the ages of 18 and 65, and are able to read and understand English. You will not be able to take part in this research if you do not have internet access and if you are unable to read or write.

During the survey we will expect from you to answer biographical, true/false, importance, yes/no and agree/disagree questions. **Anonymity** of your findings will be protected by the SurveyMonkey® program we use to conduct the survey. Your **privacy will be respected** by the researcher, the study supervisors and the statistician. Only the researchers and the statistician will be able to look at the findings the data can also be used for future studies in a broad consent and even so they will not know who you are. We are therefore interested in your honest answers and you will not be judged on your answers Findings will be kept safe on an external electronic device protected with a password. A short summary of the results in an informal user-friendly format will be posted on the same Facebook groups that the advertisement will be placed on for respondents and other Facebook visitors who are interested in the research findings.

**Gains from this research for you:** *There are no direct benefits for participating in this research study. However, working female consumers will be helped in general through researchers gaining enough knowledge to support women when searching for information in-store.*

**Risks involved:** *The risks of this study is that it will take a little of your time and a bit of your internet data that you would have used when being on Facebook.*

**Contact information:**

- You can contact Marli Nel at [marli.potch@gmail.com](mailto:marli.potch@gmail.com) if you have any further questions or have any problems.
- You can also contact the Health Research Ethics Committee via Mrs Carolien van Zyl at 018 299 1206 or [carolien.vanzyl@nwu.ac.za](mailto:carolien.vanzyl@nwu.ac.za) if you have any concerns that were not answered about the research or if you have complaints about the research.

**Declaration by respondent**By clicking the link below, I agree to take part in the research study titled: The role of knowledge on the effect of external influences on the food information search of working female consumers.

I agree that (click each option):

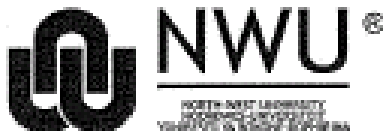
- I have read this information in a language with which I am fluent and comfortable.
- The research was clearly explained to me in the informed consent form.
- I have had a chance to contact the researcher to ask questions.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
  - I may choose to leave the study at any time and will not be affected in a negative way if I do so.

Please click here if you agree to the above:

**Link to survey:** <https://www.surveymonkey.com/r/RCSSWRH>

## ADDENDUM C: ETHICS APPROVAL CERTIFICATE

## ADDENDUM D: ADVERTISEMENT TO PARTICIPATE IN STUDY



Private Bag X6001, Potchefstroom  
South Africa 2620

Tel: +2718 299-1111/2222  
Web: <http://www.nwu.ac.za>

Health Sciences Ethics Office for Research,  
Training and Support  
Tel: +2718 299 2069  
Email: [minnie.greeff@nwu.ac.za](mailto:minnie.greeff@nwu.ac.za)

7 March 2018

Dear Miss Marli Nel

### PROOF OF ATTENDANCE AND ASSESSMENT

This letter certifies that you have attended the 2 day ethics training and successfully completed the associated assessment.

#### The Basics of Health Research Ethics

(Accreditation number: PSB002/037/01/2018 from University of Free State CPD accreditation department accredited by the HPCSA)

Presenter: Prof Minnie Greeff (Head of the Health Sciences Ethics Office for Research, Training and Support) on 22 and 23 January 2018.


This letter of attendance, as proof of ethics training and assessment, is valid for 3 years and expires on 31 January 2021 (Where applicable, Ethics CEUs awarded: 14 CEUs).

Yours sincerely,

Prof Minnie Greeff  
Head of Health Sciences Ethics Office  
for Research, Training and Support

Prof Awie Kotzé  
Executive Dean: Faculty of Health  
Sciences

## ADDENDUM D: ADVERTISEMENT TO PARTICIPATE IN STUDY



**PARTICIPATE IN A MASTERS STUDY**

You can participate in the study if you are:

- a female
- a South African resident
- employed full-time
- between the age of 18 and 65
- participating in grocery shopping

you will be expected to fill out a questionnaire that will take approximately 15 minutes

**EMPOWER WORKING WOMEN**

**YOU CANNOT PARTICIPATE IF YOU:**

- do not have internet access
- are functionally illiterate

This study aims to test to what extent external influences have an effect on your information search for regularly purchased food products, depending on the amount of knowledge you have.

**Follow the link to the survey: yet to be established**

PosterMyWall.com

# ADDENDUM E: ETHICAL APPROVAL OF AMENDMENT



Prof M van der Merwe  
Consumer Sciences  
AUTHeR

Private Bag X8001, Potchefstroom  
South Africa 2520

Tel: 018 269-1111/2222  
Web: <http://www.nwu.ac.za>

Health Sciences Ethics Office for Research,  
Training and Support

North-West University Health Research Ethics  
Committee (NWU-HREC)  
Tel: 018-285 2201  
Email: [Wayne.Towers@nwu.ac.za](mailto:Wayne.Towers@nwu.ac.za)

25 April 2019

Dear Prof van der Merwe

## APPROVAL OF YOUR AMENDMENT REQUEST BY THE NORTH-WEST UNIVERSITY HEALTH RESEARCH ETHICS COMMITTEE (NWU-HREC) OF THE FACULTY OF HEALTH SCIENCES

Ethics number: NWU-00136-18-A1

Kindly use the ethics reference number provided above in all future correspondence or documents submitted to the administrative assistant of the North-West University Health Research Ethics Committee (NWU-HREC) secretariat.

**Study title:** The role of knowledge on the effect of external influences on the food information search of working female consumers

**Study leader/Researcher:** Prof M van der Merwe

**Student:** M Nel-24958743

You are kindly informed that your amendment request (change to the inclusion criteria for selection of the Facebook pages that will be approached) to the aforementioned project has been approved. Any future amendments to the proposal or other associated documentation must be submitted to the NWU-HREC, Faculty of Health Sciences, North-West University, prior to implementing these changes. These requests should be electronically submitted to [Ethics-HRECAppl@nwu.ac.za](mailto:Ethics-HRECAppl@nwu.ac.za), for review BEFORE approval can be provided, with a cover letter with a specific subject title indicating, "Amendment request: NWU-XXXXX-XX-XX". The letter should include the title of the approved study, the names of the researchers involved, the nature of the amendment/s being made (indicating what changes have been made as well as where they have been made), which documents have been attached and any further explanation to clarify the amendment request being submitted. The amendments made should be indicated in **yellow highlight** in the amended documents. The e-mail, to which you attach the documents that you send, should have a specific subject line indicating that it is an amendment request e.g. "Amendment request: NWU-XXXXX-XX-XX". This e-mail should indicate the nature of the amendment. This submission will be handled via the expedited process.

We wish you the best as you conduct your research. If you have any questions or need further assistance, please contact the Faculty of Health Sciences Ethics Office for Research, Training and Support at [Ethics-HRECAppl@nwu.ac.za](mailto:Ethics-HRECAppl@nwu.ac.za).

Yours sincerely

Digitally signed by Wayne  
Towers  
Date: 2019.04.25  
08:44:12 +0200

Prof Wayne Towers  
Chairperson: NWU-HREC

Digitally signed by  
Prof Minnie Greeff  
Date: 2019.04.25  
11:05:01 +0200

Prof Minnie Greeff  
Head of Health Sciences Ethics  
Office for Research, Training and  
Support

Current details: (2020602) G:\My Drives\ Research and Postgraduate Education\1.5.3 Letters Templates\1.5.4.1\_Approval\_letter\_Amend\_Req\_HREC.docm  
30 April 2019

File reference: 1.5.4.1

## ADDENDUM F: ADDITIONAL TABLES

These tables were used in Chapter 4 – Results and findings written in article format.

**Table 1. Demographical and general information (N = 223)**

Variables	Frequency	Percentage (%)
<b>Age (years)</b>		
18-25	56	25.1
26-35	72	32.3
36-45	53	23.8
46-55	33	14.8
56-65	9	4.0
<b>Level of education</b>		
Lower than Grade 12.	6	2.7
Grade 12 completed.	29	13.0
Post Grade 10 or 12 skills development / occupational training.	15	6.7
Grade 12 + diploma/degree.	93	41.7
Postgraduate diploma/degree.	80	35.9
<b>Monthly income (after deductions)</b>		
R0-R2 999	7	3.1
R3 000-R5 999	17	7.6
R6 000-R8 999	23	10.3
R9 000-R11 999	31	13.9
R12 000-R14 999	23	10.3
R15 000-R17 999	28	12.6
R18 000-R20 999	26	11.7
R23 000-R25 999	17	7.6
R26 000-R28 999	6	2.7
R29 000-R30 999	6	2.7
≥ R31 000	26	11.7
I prefer not to say	13	5.8
<b>Household's monthly food expenditure</b>		
R0-R999	10	4.5
R1 000-R1 999	33	14.8
R2 000-R2 999	51	22.9
R3 000-R3 999	41	18.4
R4 000-R4 999	34	15.2
R5 000-R5 999	25	11.2
≥ R6 000	24	10.8
I am not sure	5	2.2

**Table 1. Demographical and general information (N = 223) (Continue)**

Variables	Frequency	Percentage (%)
<b>Amount of children living in household (under 18 years)</b>		
0	116	52.0
1	51	22.9
2	39	17.5
3	13	5.8
4	3	1.3
≥ 4	1	0.4
<b>Amount of individuals in household over 18 years not contributing to household income</b>		
0	124	55.6
1	56	25.1
2	30	13.5
3	11	4.9
≥ 4	2	0.9
<b>Amount of individuals contributing to household income</b>		
0	53	23.8
1	146	65.5
2	19	8.5
3	4	1.8
≥ 4	1	0.4
<b>Frequency of shopping for regularly used food products (e.g. bread, milk, pasta, rice, sugar, maize meal)</b>		
Once a day	34	15.2
Once a week	74	33.2
Twice a week	46	20.6
Three to five times a week	37	16.6
Once every two weeks	14	6.3
Once a month	18	8.1
<b>Participant health consciousness</b>		
Not health conscious at all	19	8.5
Somewhat health conscious	145	65.0
Very health conscious	58	26.0
Extremely health conscious	1	0.4
<b>Time spent in-store to look for food items regularly purchased (e.g. bread, milk, eggs)</b>		
0-15 minutes	62	27.8
16-30 minutes	93	41.7
31-45 minutes	50	22.4
46-60 minutes	10	4.5
≥ 60	8	3.6

**Table 2. Respondents following a diet (N = 223)**

Variables	Frequency	Percentage (%)
<b>Following a specific diet</b>		
Yes	43	19.3
No	180	80.7
<b>#Diets followed</b>		
Portion control/weight loss	23	10.3
Vegetarian	5	2.2
High-protein diet	8	3.6
HALAAL	4	1.8
Banting/ketogenic	9	4.0
Low-carb diet	18	8.1
Diabetic	5	2.2
Low-fat/cholesterol	13	5.8
Avoiding particular ingredients/allergens	8	3.6
Other: Gluten free	1	0.4
Other: Low sugar	1	0.0

#Could choose more than one option

**Table 3. The average percentage (%) score of respondents' OK regarding the consumption of healthy foods (N = 223)**

	% Correct
2.1.2. Legumes or pulses such as beans and lentils do not have many useful nutrients.	81.61
2.1.3. Fat is always bad for your health.	92.83
2.1.5. If you have eaten high fat foods, you can reverse the effects by eating apples.	56.05
2.1.6. Fruit juice is not as healthy as fresh fruit.	94.17
2.1.7. Oven baked chicken is healthier than deep fried chicken.	100
2.1.9. A salad dressing made with mayonnaise is healthier than a French salad dressing made with oil and vinegar.	84.3
2.1.10. The same amount of sugar (e.g. 5g) and fat (e.g. 5g) contains an equal amount of kilojoules (calories).	65.47
2.1.12. The amount of salt in the food you eat does not affect your health.	95.96
2.1.13. Oily fish (e.g. salmon, sardines, tuna) contains healthier fats than red meat.	91.93
2.1.14. The main health benefit of fruit and vegetables is the supply of vitamins and minerals.	95.07
2.1.15. A balanced diet means to eat the same quantities of all food types.	85.65
2.1.16. Sources of natural fibre (e.g. oats, whole wheat bread, vegetables) must be eaten every day.	89.24

KMO=0.647 and % Variance explained by extracted factors= 56.53

**Table 4. Summary of EFA of the respondents' subjective knowledge regarding the healthiness of food (N = 223)**

Item	Factor loadings	
	Nutrient intake limit	Frequently consumed
3.1.13.the healthiness of foods that provide fibre.	0.803	
3.1.12. the healthiness of different foods that one should eat daily.	0.793	
3.1.9. the importance of eating a variety of foods.	0.757	
3.1.14. the different foods to include on a healthy balanced plate of food.	0.737	
3.1.11. the healthiness of dairy products (e.g. milk, cheese, yogurt).	0.728	
3.1.6. the healthiness of legumes/pulses (e.g. beans, lentils) in my diet.	0.542	
3.1.8. the healthiness of fresh fruit and fruit juice.	0.641	
3.1.1. the healthiness of different sugar types (e.g. honey, brown, white sugar).		0.803
3.1.2. the different types of fats and their effect on my health.		0.782
3.1.3. the healthiness of the amount of salt in my food.		0.697
3.1.4. the healthiness of oven baked foods and deep fried foods.		0.657
3.1.5. the healthiness of salads containing different salad dressings.		0.638
3.1.7. the healthiness of eating the appropriate amount of different fats.		0.657
<b>Inter-item correlation</b>	0.45	0.41
<b>Cronbach's alpha coefficient</b>	0.85	0.81
<b>Mean factor score</b>	3.82	4.03
<b>Standard deviation</b>	±(0.63)	±(0.55)

KMO=0.894 and % Variance explained by extracted factors=53.72

(Likert Scale: 1: Strongly disagree; 2: Disagree; 3: Neither agree nor disagree; 4: Agree; 5: Strongly agree)  
 (Scale: 1: Yes; 2: No; 3: I'm not sure)

**Table 5. Summary of EFA of external influences during the information search process in-store (N = 223)**

Item	Factor loadings			
	Visual	Price and compare	Convenience	Unique variable#
4.10. The visual attractiveness of the product packaging.	0.830			
4.9. The picture of the product on the packaging.	0.826			
4.11. Religious claims on the packaging (e.g. HALAAL, Kosher)	0.435			
4.13. Weekly/daily specials (e.g. pamphlets that display discounts).		0.864		
4.14. In-store promotions (e.g. tastings, banners).		0.727		
4.12. The price of the food products.		0.675		
4.15. Availability of a variety of a specific product (e.g. different breads).		0.371		
4.4. Other tasks you still have to do today.			0.785	
4.5. Time available to do the shopping.			0.712	
4.6. Easy access of products in the store (e.g. position on the shelf).			0.614	
4.7. Easy/convenient use or preparation of products.			0.547	
4.8. Convenient use of the packaging (e.g. reseal, easy storage).			0.462	
4.1. The different food product brands (e.g. Nestlé, Kellogg's, Clover, Simba).				0.578
4.2. Family members need exclusion of particular ingredients (due to health concerns, e.g. sugar or allergens).				0.676
4.3. Your child's food purchase request.				0.523
<b>Inter Item correlation</b>	0.44	0.31	0.34	0.14
<b>Cronbach's alpha coefficient</b>	0.69	0.64	0.72	0.33
<b>Mean factor score</b>	2.56	3.53	3.74	
<b>Standard deviation</b>	±(0.95)	±(0.69)		

KMO=0.721 and % Variance explained by extracted factors=45.32

(Likert Scale: 1: Unimportant; 2: Of little importance; 3: Moderately important; 4: Important; 5: Very important)

#Due to insufficient reliability these items were discussed individually

**Table 6. Summary of EFA of the use of packaging information when searching for product information in-store. (N = 208)**

Item	Factor loadings			
	Nutritional value and ingredients	Expiry date	Allergens	Claims
a) Nutritional value of a new food product not previously bought	0.915			
a) Nutritional value of processed convenience food (e.g. canned soup, vegetables, prepared meals)	0.859			
a) Nutritional value of staple food (e.g. maize meal, bread)	0.847			
c) Ingredients of processed convenience food (e.g. canned soup, vegetables, prepared meals)	0.825			
a) Nutritional value of processed meats (polonies, bacon, sausages, canned)	0.779			
c) Ingredients of a new food product not previously bought	0.706			
a) Nutritional value of plant based proteins (e.g. soy, dry beans, peas & nuts)	0.680			
a) Nutritional value of dairy	0.673			
d) Ingredients of staple food (e.g. maize meal, bread)	0.657			

**Table 6. Summary of EFA of the use of packaging information when searching for product information in-store. (N = 208) (Continue)**

Item	Factor loadings			
	Nutritional value and ingredients	Expiry date	Allergens	Claims
c) Ingredients of processed meats (polonies, bacon, sausages, canned)	0.604			
c) Ingredients of fats (e.g. butter, margarine, olive oil, sunflower oil)	0.585			
a) Nutritional value of Cookies, Snacks & Candies	0.584			
a) Nutritional value of fats (e.g. butter, margarine, olive oil, sunflower oil)	0.579			
c) Ingredients of frozen fruit and vegetables	0.561			
a) Nutritional value of fresh or frozen chicken, fish and meat	0.521			
c) Ingredients of Cookies, Snacks & Candies	0.510			
c) Ingredients of beverages (tea, coffee & sodas)	0.493			
a) Nutritional value of beverages (tea, coffee & sodas)	0.438			
b) Expiry date of staple food (e.g. maize meal, bread)		0.796		
b) Expiry date of dairy		0.775		
b) Expiry date of a new food product not previously bought		0.756		
b) Expiry date of frozen fruit and vegetables		0.742		
b) Expiry date of plant based proteins (e.g. soy, dry beans, peas & nuts)		0.729		

**Table 6. Summary of EFA of the use of packaging information when searching for product information in-store. (N = 208) (Continue)**

Item	Factor loadings			
	Nutritional value and ingredients	Expiry date	Allergens	Claims
b) Expiry date of fats (e.g. butter, margarine, olive oil, sunflower oil)		0.676		
b) Expiry date of Cookies, Snacks & Candies		0.671		
b) Expiry date of fresh or frozen chicken, fish and meat		0.637		
b) Expiry date of beverages (tea, coffee & sodas)		0.568		
a) Expiry date of fresh fruit and vegetables		0.502		
d) Allergens of staple food (e.g. maize meal, bread)			0.891	
d) Allergens of Cookies, Snacks & Candies			0.884	
d) Allergens of dairy			0.882	
d) Allergens of a new food product not previously bought			0.857	
d) Allergens of processed convenience food (e.g. canned soup, vegetables, prepared meals)			0.850	
d) Allergens of fats (e.g. butter, margarine, olive oil, sunflower oil)			0.814	
c) Allergens of plant based proteins (e.g. soy, dry beans, peas & nuts)			0.804	
d) Allergens of processed meats (polonies, bacon, sausages, canned)			0.803	
e) Claims of staple food (e.g. maize meal, bread)				0.848

**Table 6. Summary of EFA of the use of packaging information when searching for product information in-store. (N = 208) (Continue)**

Item	Factor loadings			
	Nutritional value and ingredients	Expiry date	Allergens	Claims
e) Claims of fats (e.g. butter, margarine, olive oil, sunflower oil)				0.846
d) Claims of frozen fruit and vegetables				0.845
c) Claims of fresh or frozen chicken, fish and meat				0.809
e) Claims of a new food product not previously bought				0.785
e) Claims of Cookies, Snacks & Candies				0.782
d) Claims of plant based proteins (e.g. soy, dry beans, peas & nuts)				0.758
d) Claims of beverages (tea, coffee & sodas)				0.743
e) Claims of dairy				0.709
e) Claims of processed meats (polonies, bacon, sausages, canned)				0.704
b) Claims of fresh fruit and vegetables				0.651
<b>Inter-item correlation</b>	0.55	0.49	0.76	0.66
<b>Cronbach's alpha coefficient</b>	0.96	0.91	0.96	0.96
<b>Mean factor score</b>	2.54	3.30	2.17	2.19
<b>Standard deviation</b>	±(0.84)	±(0.69)	±(1.06)	±(0.93)

KMO=0.935 and % Variance explained by extracted factors=62.90

(Likert scale: 1: Not at all; 2: To a small extent; 3: To a moderate extent; 4: To a large extent)



## ADDENDUM G: RESEARCH ARTICLE GUIDELINES

### *British Food Journal*

#### **Author Guidelines:**

#### **Manuscript Submission Guidelines for the British Food Journal**

**Content:** The British Food Journal publishes original research in all areas of food, consumption and marketing.

Online submission: Manuscripts must be submitted online

<http://mc.manuscriptcentral.com/bfj>. **Authors must set up an online account.**

#### **Manuscript requirements:**

The manuscript must be prepared using the following guidelines:

- |                       |  |
|-----------------------|--|
| <b>Format</b>         | Article files should be provided in Microsoft Word format. LaTeX files can be used if an accompanying PDF document is provided. PDF as a sole file type is not accepted, a PDF must be accompanied by the source file. Acceptable figure file types are listed further below.  |
| <b>Article Length</b> | Articles should be between 4000 and 7000 words in length. This includes all text including references and appendices. Please allow 280 words for each figure or table.   |
| <b>Article Title</b>  | A title of not more than eight words should be provided.   |
| <b>Author details</b> | All contributing authors' names should be added to the ScholarOne submission, and their names arranged in the correct order for publication. <ul style="list-style-type: none"><li>• Correct email addresses should be supplied for each author in their separate author accounts</li><li>• The full name of each author must be present in their author account in the exact format they should appear for publication, including or excluding any middle names or initials as required</li></ul> |

- The affiliation of each contributing author should be correct in their individual author account. The affiliation listed should be where they were based at the time that the research for the paper was conducted

**Biographies and acknowledgements** Authors who wish to include these items should save them together in an MS Word file to be uploaded with the submission. If they are to be included, a brief professional biography of not more than 100 words should be supplied for each named author.

**Research funding** Authors must declare all sources of external research funding in their article and a statement to this effect should appear in the Acknowledgements section. Authors should describe the role of the funder or financial sponsor in the entire research process, from study design to submission.

**Structured Abstract** Authors must supply a structured abstract in their submission, set out under 4-7 sub-headings (see our "[How to... write an abstract](#)" guide for practical help and guidance):

- Purpose (mandatory)
- Design/methodology/approach (mandatory)
- Findings (mandatory)
- Research limitations/implications (if applicable)
- Practical implications (if applicable)
- Social implications (if applicable)
- Originality/value (mandatory)

Maximum is 250 words in total (including keywords and article classification, see below).

Authors should avoid the use of personal pronouns within the structured abstract and body of the paper (e.g. "this paper investigates..." is correct, "I investigate..." is incorrect).

**Keywords** Authors should provide appropriate and short keywords in the ScholarOne submission that encapsulate the principal topics of the paper (see the [How to... ensure your article is highly downloaded](#) guide for practical help and guidance on choosing search-engine friendly keywords). The maximum number of keywords is 12.

Whilst Emerald will endeavour to use submitted keywords in the published version, all keywords are subject to approval by Emerald's in house editorial team and may be replaced by a matching term to ensure consistency.

**Article  
Classification**

Authors must categorize their paper as part of the ScholarOne submission process. The category which most closely describes their paper should be selected from the list below.

**Research paper.** This category covers papers which report on any type of research undertaken by the author(s). The research may involve the construction or testing of a model or framework, action research, testing of data, market research or surveys, empirical, scientific or clinical research.

**Viewpoint.** Any paper, where content is dependent on the author's opinion and interpretation, should be included in this category; this also includes journalistic pieces.

**Technical paper.** Describes and evaluates technical products, processes or services.

**Conceptual paper.** These papers will not be based on research but will develop hypotheses. The papers are likely to be discursive and will cover philosophical discussions and comparative studies of others' work and thinking.

**Case study.** Case studies describe actual interventions or experiences within organizations. They may well be subjective and will not generally report on research. A description of a legal case or a hypothetical case study used as a teaching exercise would also fit into this category.

**Literature review.** It is expected that all types of paper cite any relevant literature so this category should only be used if the main purpose of the paper is to annotate and/or critique the literature in a particular subject area. It may be a selective bibliography providing advice on information sources or it may be comprehensive in that the

paper's aim is to cover the main contributors to the development of a topic and explore their different views.

**General review.** This category covers those papers which provide an overview or historical examination of some concept, technique or phenomenon. The papers are likely to be more descriptive or instructional ("how to" papers) than discursive.

## **Headings**

Headings must be concise, with a clear indication of the distinction between the hierarchy of headings.

The preferred format is for first level headings to be presented in bold format and subsequent sub-headings to be presented in medium italics.

## **Notes/Endnotes**

Notes or Endnotes should be used only if absolutely necessary and must be identified in the text by consecutive numbers, enclosed in square brackets and listed at the end of the article.

## **Figures**

All Figures (charts, diagrams, line drawings, web pages/screenshots, and photographic images) should be submitted in electronic form.

All Figures should be of high quality, legible and numbered consecutively with arabic numerals. Graphics may be supplied in colour to facilitate their appearance on the online database.

- Figures created in MS Word, MS PowerPoint, MS Excel, Illustrator should be supplied in their native formats. Electronic figures created in other applications should be copied from the origination software and pasted into a blank MS Word document or saved and imported into an MS Word document or alternatively create a .pdf file from the origination software.
- Figures which cannot be supplied as above are acceptable in the standard image formats which are: .pdf, .ai, and .eps. If you are unable to supply graphics in these formats then please ensure they are .tif, .jpeg, or .bmp at a resolution of at least 300dpi and at least 10cm wide.
- To prepare web pages/screenshots simultaneously press the "Alt" and "Print screen" keys on the keyboard, open a blank Microsoft Word document and simultaneously press "Ctrl" and "V" to paste the image. (Capture all the contents/windows on

the computer screen to paste into MS Word, by simultaneously pressing "Ctrl" and "Print screen".)

- Photographic images should be submitted electronically and of high quality. They should be saved as .tif or .jpeg files at a resolution of at least 300dpi and at least 10cm wide. Digital camera settings should be set at the highest resolution/quality possible.

## Tables

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### *For books*

Surname, Initials (year), *Title of Book*, Publisher, Place of publication.

e.g. Harrow, R. (2005), *No Place to Hide*, Simon & Schuster, New York, NY.

### *For book chapters*

Surname, Initials (year), "Chapter title", Editor's Surname, Initials, *Title of Book*, Publisher, Place of publication, pages.

e.g. Calabrese, F.A. (2005), "The early pathways: theory to practice – a continuum", in Stankosky, M. (Ed.), *Creating the Discipline of Knowledge Management*, Elsevier, New York, NY, pp. 15-20.

*For journals* Surname, Initials (year), "Title of article", *Journal Name*, volume issue, pages.

e.g. Capizzi, M.T. and Ferguson, R. (2005), "Loyalty trends for the twenty-first century", *Journal of Consumer Marketing*, Vol. 22 No. 2, pp. 72-80.

*For published conference proceedings* Surname, Initials (year of publication), "Title of paper", in Surname, Initials (Ed.), *Title of published proceeding which may include place and date(s) held*, Publisher, Place of publication, Page numbers.

e.g. Jakkilinki, R., Georgievski, M. and Sharda, N. (2007), "Connecting destinations with an ontology-based e-tourism planner", in *Information and communication technologies in tourism 2007 proceedings of the international conference in Ljubljana, Slovenia, 2007*, Springer-Verlag, Vienna, pp. 12-32.

*For unpublished conference proceedings* Surname, Initials (year), "Title of paper", paper presented at Name of Conference, date of conference, place of conference, available at: URL if freely available on the internet (accessed date).

e.g. Aumueller, D. (2005), "Semantic authoring and retrieval within a wiki", paper presented at the European Semantic Web Conference (ESWC), 29 May-1 June, Heraklion, Crete, available at: <http://dbs.uni-leipzig.de/file/aumueller05wiksar.pdf> (accessed 20 February 2007).

*For working papers* Surname, Initials (year), "Title of article", working paper [number if available], Institution or organization, Place of organization, date.

e.g. Moizer, P. (2003), "How published academic research can inform policy decisions: the case of mandatory rotation of audit appointments", working paper, Leeds University Business School, University of Leeds, Leeds, 28 March.

*For encyclopedia entries (with no author or editor)* *Title of Encyclopedia* (year) "Title of entry", volume, edition, Title of Encyclopedia, Publisher, Place of publication, pages.

e.g. *Encyclopaedia Britannica* (1926) "Psychology of culture contact", Vol. 1, 13th ed., Encyclopaedia Britannica, London and New York, NY,

pp.

765-71.

(For authored entries please refer to book chapter guidelines above)

*For newspaper articles (authored)* Surname, Initials (year), "Article title", *Newspaper*, date, pages.

e.g. Smith, A. (2008), "Money for old rope", *Daily News*, 21 January, pp. 1, 3-4.

*For newspaper articles (non-authored)* *Newspaper* (year), "Article title", date, pages.  
e.g. *Daily News* (2008), "Small change", 2 February, p. 7.

*For archival or other unpublished sources* Surname, Initials, (year), "Title of document", Unpublished Manuscript, collection name, inventory record, name of archive, location of archive.

e.g. Litman, S. (1902), "Mechanism & Technique of Commerce", Unpublished Manuscript, Simon Litman Papers, Record series 9/5/29 Box 3, University of Illinois Archives, Urbana-Champaign, IL.

*For electronic sources* If available online, the full URL should be supplied at the end of the reference, as well as a date that the resource was accessed.

e.g. Castle, B. (2005), "Introduction to web services for remote portlets", available at: <http://www-128.ibm.com/developerworks/library/ws-wsrp/> (accessed 12 November 2007).

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e.g. Campbell, A. and Kahn, R.L. (1999), *American National Election Study, 1948*, ICPSR07218-v3, Inter-university Consortium for Political

and Social Research (distributor), Ann Arbor, MI, available at: <http://doi.org/10.3886/ICPSR07218.v3>

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## ADDENDUM H: LANGUAGE EDITING LETTER

### *PROOF OF LANGUAGE EDITING*

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### **DECLARATION**

To whom it may concern

I hereby confirm that I have proofread and edited the language of the following dissertation, excluding the reference lists.

#### **Title of dissertation**

The role of knowledge on the effect of external influences on the food information search of working female consumers

#### **Candidate**

Marli Nel



Lariza Hoffman

Kroonstad

13 November 2019

# ADDENDUM I: TURNITIN REPORT



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**Abstract**

Forming an the perceptions of their knowledge, students are also seen to be better than. Research indicates that students are still highly responsible for maintaining healthy eating patterns in their households due to general responsibility for creating the food products that enter their homes. However, eating habits improvement often lack the time and sometimes sufficient knowledge to maintain healthy lifestyles.

Learning is a process whereby students' knowledge and attitudes regarding diet and obesity associated with self-reported awareness and non-implementation of health-related attitudes. The influence of objective and subjective knowledge to decision-making relates to diet-related behaviors are associated with a product. Researchers should present different objective knowledge to make students feel happier when shopping for groceries. Increased objective and subjective knowledge leads to consistency of the students' intention to food intake.

The study explores the relation between objective and subjective knowledge regarding healthy food, and eating habits, among students. Using their perceptions information search to explore student awareness in households. After implementation may consider a set of food products. Research on the importance of normal education using the student food plan search to help frequent food products in households. Students' knowledge differences that eating habits improvement related to frequency during purchasing activities. Consistent copy of their knowledge and their eating habits such as daily, weekly and other occasions when using their perceptions information search. There is, however, a gap in student learning regarding the accessible related knowledge about the healthiness of food and consumption during eating habits. Therefore, the present research aims to explore high-frequency and purchase. Therefore, the study aimed to determine the consistency and implementation of subjective knowledge in eating habits regarding the healthiness of food in the form of normal education on the perceptions information search to help frequent food products.

The study involves a quantitative approach (cross-sectional survey design). Data were obtained from a purposively selected sample of South African 18-year-old eating habits consumers between the ages of 18 and 24 years (N = 220) using online questionnaires. Consistent validity was determined for all the scales using exploratory factor analysis. Internal reliability (Cronbach's alpha) scores are presented using Cronbach's alpha coefficient.

The results indicated that respondents had high levels of objective knowledge regarding the healthiness of food. However, normal and low awareness on a frequent food intake of