Subjective Knowledge and The Antecedent-Mediator Relationship of TPB In Female Adolescence: Healthy Eating Intentions Prediction

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ARTICLE DETAILS

History
Received: November 2021
Available online: December 2021

Keywords
Socializing Consumer Behavior
Healthy Eating Intentions
Subjective Knowledge Adolescence
Female Consumers
Parental norms

ABSTRACT

Purpose:
This study aims to examine the predictors of intentions towards healthy eating (HE) behavior by applying the theory of planned behavior. It also aims to verify the way subjective knowledge about healthy eating moderates the attitude-intentions, subjective norms-intentions, and perceived behavioral control-intentions relationships.

Methodology:
The study employs a survey research design in which data is collected via self-administered structured questionnaires. The sample size was 404 female adolescences of 15-19 years. SPSS version 21, SMART PLS version 3, and AMOS version 20 were used to analyze the reliability, validity, measurement, and structural models.

Findings:
Family environment, as well as Parental norms and conformity towards those, are stronger to shape positive intentions towards, HE than other societal members' norms. Perceived behavioral control of HE is not a significant antecedent of HE intentions which might be due to the contingency effect of subjective knowledge. Subjective knowledge about HE moderating the attitude-intentions, subjective norms-intentions, and perceived behavioral control-intentions relationships as proposed.

Conclusion:
This is the novelty of the present work in that it has presented the moderating role of subjective knowledge about HE on the aforementioned relationships of TPB and cultivated significant results out of it. TPB is extended and delivered that overall model contributed 65% of the variance in determining HE intentions by attitude, subjective norms, and behavioral control.

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1. Introduction

A healthy diet is essential for positive health effects and it is predominantly factual for adolescents that constantly face up to make healthy choices (Sabbour, Hussein & Amin, 2018). Consumer Shift in the direction of balanced food choices pointed out the prominence of healthy behavior as an element of lifestyle (Kyrkou et al., 2018). Unhealthy food choices are associated with negative health concerns including heart diseases, respiratory syndromes, and harmful weight gain (El Ansari & Berg-Beckhoff, 2017). The practice of detrimental eating is a vital concern linked with public well-being possessing huge health as well as economic implications (Deshpande, Basil, & Basil, 2009). Plenty of dietetic preferences are used to set up early; however, people became enhanced to make consumption decisions autonomously when they pass through the phase of adolescence (Golden, Schneider, & Wood, 2016). So, studying the healthy eating (HE) behavior amongst youth is imperative as it influences the threat of various prolonged illnesses in the future (Sabbbour et al., 2018). Adolescence is an unprotected stage for the development of harmful and unhealthy eating practices along with a physiologically sedentary routine (Haerens, 2006), therefore, HE intentions of female adolescents are examined in the present research.

This study aimed to examine the predictors of intentions towards the HE Behavior in Pakistani female adolescences. Moreover, it described that in what way the Subjective Knowledge about HE influenced their attitude towards HE, subjective norms about HE, and perceived behavioral control of HE. The conception of the decision-making behavior of consumers is delivered by the theory of planned behavior (Ajzen, 1991, 2005, 2012). Based on the proposed framework, this research has also investigated the contingency effect of HE Knowledge on the HE attitude-intentions, HE subjective norms-intentions and HE perceived behavioral control-intentions relationships incorporating TPB given by Ajzen (1991).

Three key contributions have been made by this study. First is the involvement of subjective knowledge of adolescence to determine their healthy eating perspective and intentions. The results (moderation effect of subjective knowledge of HE) have not been considered in the previous studies relating to healthy consumption behavior, thus, contributing to the literature as a novelty. Second is the policymaking to make the adolescents and their societal relations (family and friends) follow the healthy eating guidelines for healthy behavior and wellbeing of the future of the nations. Last is the contribution for food sector businesses because managers can see that consumers' awareness about, HE possibly affects their businesses. Therefore, business managers can target perceptual knowledge by providing health benefits information relating to their products.

2. Literature Review

Previous scholarships revealed that obesity, weight gain/loss, and eating healthy food have been an increasing concern in many developed countries (Bazillier et al., 2011). A healthy food intake can validate the fact that it has a positive influence on health (World Cancer Research Fund WCRF, 2007). Generally, "healthy" is not well-defined but it is believed to be related to food that assists in sustaining good health and decreases the threat of prolonged illnesses (Cannon, 1992; Mellentin & Heasman, 2014). Unhealthy food intake can escalate the risks of developing chronic illnesses or threat elements for early death (Willett, 2017) because poor diet creates a difficult non-communicable disease challenge (Micha et al., 2017).

The transition through time has shown that the practices of choosing and consuming food have transformed significantly (McCluskey, 2015). Such as Ellison (2004) documented children of the previous generation who preferred highly processed food and fast food, currently are not ready to serve their children with the same food they have had. This is termed as bad news for breakfast cereal businesses identified by Strom (2014) as consumers now shifted to high protein and low sugar preferences. Apart from food businesses, that get affected by the changing consumer preferences about food choices, Nestle (2013) stated that ethical issues have also ascended that benefit one group (Businesses) and harm another (Consumers). Consumers' level of 'environmentalism' showed that they are eager to pay a premium for organic products (McCluskey, 2015) as these are characterized as healthier than inorganic or artificial food products.

The previously mentioned reasons resolved that consumers these days are becoming progressively conscious about the health and nutritional value of food (Prättälä, 2003). Besides, they are willing to implement the health-oriented transformation in their eating habits (Capacci et al., 2012). McCluskey (2015) stated that recognition of the factors which will influence the intentions towards HE behavior in consumers is going to be an essential consideration for marketers to assess the changing consumers' preferences related to food choices. Also, one can assess the HE behavior of future consumers with the acknowledgment of the elements inducing that behavior (Sabbbour et al., 2018). Accordingly, this study has served the readers (including policymakers, business managers, and future consumers) with the necessary information to establish health-related policies for future consumers' awareness and work according to consumer fondness. This article offers guidance to physicians on how to identify practices that incline women to healthy eating goals and how to communicate such intentions effectively with parents and children alike. In previous studies, it was observed that women are interested in learning about healthy foods for many different reasons. Researchers have identified the motivation and demotivation to review dietary information at the decision-making stage depending on its effectiveness and ineffectiveness. In this regard, the current study indicates several characteristics that encourage women to read food labels for health, as well as those that discourage them. As a part of our study, we also look at characteristics including those that encourage or discourage women's desire to eat healthily.

2.1. Researches on Food Consumption in Pakistan

Food consumption study in Pakistan is fairly young, and little is known about the characteristics that impact organic food intake. Using the Theory of Planned Behavior, Al-Swidi et al. (2014) found that subjective norms influence attitudes toward organic food purchases in Pakistan. Mehmood et al. (2016) revealed that organic farming approaches outperformed conventional farming methods in terms of fruit physiological parameters. A recent study shows Pakistanis utilize "excellent food" to reconnect with the environment, food systems, and social identity (Hasnain, 2018). The top reasons for consuming "great food" were determined to be pricing, accessibility, freshness, purity, origin, and Pakistani-ness (Hasnain, 2018). Research has addressed the scientific growth and benefits of organic food (Jaffar & Masud, 2003; Mehmood et al., 2016; Sadiq Butt et al., 2005), but not the consumption and purchase behavior in Pakistan.

2.2. Role of Subjective Knowledge

The level of self-confidence can be indicated by the development of subjective knowledge (perceptual knowledge). A factor of perceived behavioral control in TPB reveals an individual's self-confidence to be capable of conducting the behavior (Ajzen, 1991). Considering the stated condition, once an individual holds solid perceptual

knowledge, she/he will have greater self-confidence with an assertive capability to continue the consumption behavior (Chen & Deng, 2016). The women's attitude in the direction of that performance is going to demonstrate that confidence. The attitude en route for the behavioral actions to be performed can overshadow the influence of perceived behavioral control on intentions (Chen & Deng, 2016; Chiou, 1998). Therefore, the concern of perceived behavioral control has been suggested to be reduced in building behavioral intention as soon as a person ensures high subjective knowledge about a certain object/product. subject-predicate-object triples define relational actions in subjective knowledge. Subjective knowledge is required for tasks like obtaining information from several sources, building question-answering systems, or doing triple classification (Guti´errez & Sequeda, 2021; Ji & Pan 2020).

2.3. Adolescence and Healthy Eating

The ingestion process is one of the main requirements of any child once she/he moves into humanity and is closely related to the fulfillment of biological needs (Marty, Chambaron, Nicklaus, & Monnery-Patris, 2018). Being fresh omnivores, youngsters have to acquire the knowledge about the stuff to be consumed, the way and the time to eat it, to adapt the shared cooking beliefs, they should know and like the diets made available to them (Nicklaus, 2015). 'Adolescence' is the period in a child's life between 10 to19 years, besides it has to be reflected as an impermanent stage that initiates at beginning of puberty and lingers into early maturity, somewhat than as a permanent age set (WHO, 1997).

The purpose of encouraging healthy eating behavior in adolescence from a healthiness point of view consists of the decline in the threats of being vulnerable to constant illness (Haerens, 2006). Moreover, it is said that adolescence is also described as having greater mobility than before, liberation from family and household as well as added monetary individuality (WHO, 2014). Therefore, adolescents come to be authorized in buying and consuming their preferred nutrition and begin to eat outdoor more often. That is why adolescence is an essential period for supporting healthy eating conduct since consumption routines instigated in this time of life ensure to keep on during adulthood (Ogden, 2011).

2.4. Predictors of HE Intentions and Behavior

Bazillier et al. (2011) described that HE intentions can be determined as a function of attitude as augmented positive attitude results in constructive intentions towards HE. Similarly, subjective norms have a significant influence over HE intentions (Gibbs, 1986; Salvy et al., 2010B), and perceived behavioral control completely affects the HE intention positively (Verlhiac, Bonnet, &Ranucci, 2006). Levels of Knowledge have no significant contribution in determining the HE intention (Bazillier et al., 2011) but, on the other hand, Recker and Saleem (2014) discussed that knowledge conception acquired assured consideration in research on the subject of behavior related to health. Predicting intentions to disapprove unhealthy snacks and sweet syrupy beverages intake is investigated by preceding actions, however, its consequence remained fewer than perceived behavioral control (Masalu & Astrom, 2001). In contrast, it is realized that PBC ensured an intense relationship with the intentions towards HE behavior in older people as compared to younger people (McEachan, Conner, Taylor, & Lawton, 2011).

To investigate healthy eating behavior in consumers, it is required to identify the healthy eating intentions, since according to Ajzen (1991) the key element to carry out a specific behavior is intention towards that behavior. The predictors of intention according to TPB are attitude, subjective norms, and perceived behavioral control for that particular

behavior. The procedures of determining the intention towards a certain behavior can be according to the facilitators and barriers of that behavior which in turn shape the main constructs (attitude, subjective norms, and perceived behavioral control). There is extant literature on the facilitators and barriers of healthy food intake (Seguin et al, 2014; Shrestha et al., 2017). In the past Bazillier et al. (2011) studied the predictors of HE intentions being facilitators and barriers towards HE behavior. Table 1 is showing the brief of preceding literature on facilitators and barriers to HE behavior.

2.5. Theoretical Framework

The theory of planned behavior (TPB) is amongst the most popular models in social psychology (Ajzen, 1991) to study behavior. TPB has set up its application broadly in the field of research and has to turn out to be a support to precisely predict diverse types of behavior with the help of experimental evidence (Ajzen, 1991; Riebl et al., 2015). Specifically, the theory of planned behavior has been extensively applied in the research area of consumer behavior (Sheppard, Hartwick & Warshaw, 1988). According to Armitage and Conner (2001), health psychologists have confirmed this model by using it widely to study health behavior and also claimed it to be responsible for the solid prediction of the behavior.

Extant scholarships on HE Behavior are available (Conner, Norman & Bell, 2002) but scant studies incorporate the concept of knowledge perception like Bazillier et al. (2011) and Conner and Norman (2005) ensured. Still, a few studies such as of Chiou (1998) include the role of Subjective knowledge influencing a specific task/behavior. But in the case of studies about HE, consideration of subjective knowledge considered as a moderator is not considered in previous literature. Therefore, this research has incorporated the concept of Subjective Knowledge and described the contingency effect of HE knowledge on the relationships of the theory of planned behavior, and provided useful insights after determining future consumers' behavior.

The following hypotheses have been established from the conceptual model of the research:

1. Attitude towards HE influences the Intentions towards HE behavior.
2. Subjective norms influence the Intentions towards HE behavior.
3. Perceived Behavioral Control influences the Intentions towards HE behavior.
4. Subjective HE Knowledge influences the relationship between Attitude and Intentions in a way that a high level of HE Knowledge will strengthen the relationship and vice versa.
5. Subjective HE Knowledge influences the relationship between subjective norms and Intentions in a way that a low level of HE Knowledge will strengthen the relationship and vice versa.
6. HE Knowledge influences the relationship between Perceived Behavioral Control and Intentions in a way that a high level of HE Knowledge will weaken the relationship and vice versa.

3. Methodology

3.1. Study Data

The constructs that plan to design the research framework are implemented from related literature reviews to better suit the subject of the research. The questionnaire will consist of two divisions. The First Division will comprise of the question on 7 points linear scale,

going from 1 as "Strongly disagree" to 7 as "Strongly Agree", related to attitude towards HE, subjective norms about HE, perceived behavioral control of HE and their roles in determining healthy eating intention and the effect of Subjective Knowledge on these relationships. The second division will cover respondents' demographics.

To measure consumers' attitudes towards HE, four items are acquired from the study of Conner and Sparks (2005). Questions like *"Eating a healthy diet will help me to lose weight and make my appearance desirable"* have been asked. Similarly, nine more items from the mentioned study measured the consumers' subjective norms and perceived behavioral control about HE, five and four items for both respectively. Queries such as "My parents think I should eat a healthier diet" and "I have limited choice of healthier food when eating out" have inquired. In the same way, as stated before, HE intentions are evaluated by using three items that have been adapted from the work of Bazillier et al. (2011). And finally, three items from the study of Flynn and Goldsmith (1999) are attained to assess HE knowledge. Pilot testing of the questionnaire is also done for the improvement of the questionnaire and possible difficulties that appeared are evaded.

The population of the present investigation is all Pakistani female adolescence of age 15-19 years to study HE Behavior, thus the unit of analysis is individual. The reason for the choice is that this age group of females has limited factual knowledge and they mostly rely on their perceived knowledge. Furthermore, it is also assumed that this age group is more social norms oriented (Bazillier et al., 2011). Another important point of selecting this sample is that the girls are the future consumers with establishing a family in the future. Also, girls of 15-19 years in Pakistan are studying in secondary, higher secondary, and the first year of their undergraduate schools, therefore, they are more vulnerable to adopting unhealthy eating behavior. As a result, it is of utmost importance to make them aware of Healthy Eating adoption in their early life. Also, it is necessary to know the current HE behavior of female adolescence by the Government Health Department for policy making (such as banning carbonated drinks) for the well-being of near-term society. The responses are taken from the respondents (female adolescents) extracted from convenience sampling to investigate HE intentions, and made them available with the time to fill it. Then the filled questionnaires are collected for data entry and further analysis. A high rate of response is significant to intensify a scholarship's validity (Bryman& Bell, 2007; Saunders, 2011). The reply rate of the present study's survey is 78% after analyzing the response forms and discarding informally filled questionnaires, which comes under the response rate class "very good" alternating from 70-85% (Mangione, 1995).

3.2. Analysis Methods

The present study is a cross-sectional quantitative analysis based on the collection of primary data. After data collection and entry, a further assessment like reliability and validation of the collected data for analysis took place in SPSS 21 and SMART PLS 3 software respectively. For data assessment, screening and cleaning of the data are performed to check if missing data is present. Similarly, for normality check of the data outliers, kurtosis and skewness is assessed. For validation of the data descriptive statistics, scale reliability, and validity are adopted. Descriptive statistics include meaning, median, and mode as well as normality, variability for instance variance, standard deviation, range, skewness, and kurtosis. Cronbach alpha has measured the scale reliability by assessing the composite reliability of constructs. To check validity, construct validity, discriminant validity, convergent validity, and face validity techniques are implemented. Validity includes Exploratory factor analysis, KMO test, and Average variance extracted (AVE). Structural Equation Modeling is applied to the data using

AMOS 20 software to analyze the structural relationship between latent constructs and measured variables as well as to test the hypotheses that are suggested previously. Testing has taken place by computing a measurement model that has applied confirmatory factor analysis (CFA) for further validation of data to examine the proposed hypotheses. Then to assess the main effects of antecedents of TPB on the Dependent variable, the structural model has run the regression analysis and multi co-linearity model through co-relation analysis. Also, the interaction effects of the Moderator on the Antecedents-Intentions relationships are examined.

4. Results

4.1. Demographics

The responses are received through self-administered survey questionnaires. A whole of 404 response forms is collected which are entirely accommodating for the analysis to take place. As the study is based completely on the female adolescence, therefore, the total sample size is 404 females (100%). Table.1. displays the results of the demographic profile of the respondents.

Table.1. Demographics of Respondents

Variable		Frequency	%
Age			
	14 to 15 years	147	36.4
	15 to 16 years	78	19.3
	16 to 17 years	70	17.3
	17 to 18 years	61	15.1
	18-19 years	48	11.9
Education level			
	9^{th}	71	17.6
	10^{th}	87	21.5
	Intermediate 1st year	59	14.6
	Intermediate 2nd year	41	10.1
	O/A levels	54	13.4
	Undergraduate (1st year)	92	22.8
Father's Occupation			
	Private Employee	80	19.8
	Government Employee	95	23.5
	Owner of Business	193	47.8
	Retired/Unemployed	36	8.9
Mother's Occupation			
	Employed	36	8.9
	Housewife	337	83.4
	Owner of a Business	5	1.2
	Part-time Employee	26	6.4
Income			
	15000-45000 PKR	121	30.0
	45000-70000 PKR	120	29.7
	70000-100000 PKR	87	21.5
	100000-150000 PKR	69	17.1
	Above 150000 PKR	7	1.7
Who Buys Grocery for home?			
	Mother	214	53
	Father	137	33.9
	Servant	47	11.6
	Other	6	1.5
Who cooks food at home?			
	Mother	324	80.2
	Other Family Member	29	7.2
	Cook	51	12.6

Taking homemade food for lunch			
	Always	44	10.9
	Never	164	40.6
	Sometimes	149	36.9
	Mostly	47	11.6

Source: Author's own elaboration

4.2. Descriptive Statistics and Reliability

The "Attitude towards healthy eating" scale has four measuring items which are coded as A1, A2, A3, and A4. "Subjective norms about healthy eating" scale contains five evaluating items with codes SN1, SN2, SN3, SN4, and SN5. The scale of "Perceived behavioral control of healthy eating" was calculated by four items labeled as PBC1, PBC2, PBC3, and PBC4. "Intentions towards healthy eating" is measured by 3 items with codes I1, I2, and I3. Finally, the scale "Subjective knowledge about healthy eating" consists of three items identified as SK1, SK2, and SK3.

Amongst the most applied techniques for analyzing the internal reliability, Cronbach's alpha is the one with its optimal value prescribed higher than 0.70 (Hair et al., 2010). Further precisely using another criterion, a value less than or equal to 0.90 is believed as exceptional in reliability, a value between 0.70-0.90 is observed to be high in reliability, while a value ranges from 0.50-0.70 is detected as reasonably reliable, besides a figure lower than 0.50 designated as poor in reliability (Hinton, McMurray, & Brownlow, 2014). Scores of Skewness, as well as Kurtosis, identified for every scale's item is falling in the declared range by Hair et al. (2010) that is less than or equal to 2.58, which presents the normal distribution of the statistical information. The outcomes demonstrate that each variable has high reliability highlighting the inner consistency of every scale studied in the current research work.

4.3. Structural Equation Modeling

Hair et al. (2010) explicated that the SEM method comprises two divisions, the first is confirmatory factor analysis which is also known as measurement model and the other is analyzing the structural model. CFA approves the associations amongst latent variables and their measuring constructs whereas the structural model authorizes the interactions among variables as proposed in hypotheses (Jobson, 2012).

4.4. Confirmatory Factor Analysis

In this research work, CFA took place with five latent variables and nineteen observed variables. Attitude towards HE (A), HE Subjective norms about HE (SN), Perceived behavioral control of HE (PBC), Intentions towards HE (I), and Subjective knowledge about HE (SK) is the investigated latent variables. According to Kline (2015), CFA is practiced including the latent variables (5 in case of the present study), and the path parameter between the respective items variables is fixed as 1. The legitimacy of the factor analysis ought to be verified through calculating indices for model goodness fit as well as construct validity (Hair et al., 2010). For that reason, the present study has measured the aforesaid methods to do CFA.

Factor loadings of all the observed variables if more than or equal to 0.5 are significant as these described 25% variance with results (Kim & Mueller, 1978). All the numeric values are in the accepted range of > 0.5. From the results of the default measurement model, it is found that among nine model fit tests seven are reasonable fit, one is the best fit and one is poor fit within the recommended threshold. As the criterion of at least four model fit indices is fulfilled, therefore, the present model is accepted as being reasonably fit.

4.4.1 Validity

This research has applied two methods of examining the construct validity first is convergent validity and the second is discriminant validity. The way by which measuring items are associated with one another and whether the measures are within the same scale is exhibited by convergent validity (Jobson, 2012). It is observed using estimating factor loadings, t-value, composite reliability, and the average of the extracted variance (AVE). Factor loadings are suggested to be larger than or equal to 0.50 (Kim & Mueller, 1978), the minimum adequate value for composite reliability is 0.70 and for average variance extracted is 0.50 (Fornell and Larcker, 1981). Results gave factor loadings of the present model are greater than or equal to 0.50, values of CR are greater than 0.70 and the figures of AVE are larger than 0.50 which described that convergent validity is attained in the current research.

Discriminant validity is analyzed so that it can be observed that any scale is not a replication of another scale. For suitable discriminant validity, the square root of the AVE of every single scale must be greater than the correlation coefficients of another scale (Fornell & Larcker, 1981). It can be seen that the discriminant validity is recognized in this study because the square root of extracted variance for every given variable is larger than the coefficients of correlations of other variables

4.4.2. Structural Model

Structural model testing is based on the model fit indices (model fitness) calculations to check the model appropriateness as well as investigate the theorized relationships among all variables (hypotheses testing). Next to the measurement model (CFA), the structural model consists of 5 variables with 19 items. These 5 variables are attitude towards HE, subjective norms about HE, perceived behavioral control of HE, intentions towards HE, and subjective knowledge about HE labeled as A, SN, PBC, I, and SK respectively. The model fitness structural model is tested on the unchanged format of the measurement model including nine model fit indices. According to the results, the model is a reasonable fit with the three best, three reasonable, and two poor fit indices results. The value of CMIN/DF = 2.76, GFI = 0.99, AGFI = 0.93, CFI = 0.93, RMSEA = 0.066, NFI = 0.89, TFI = 0.909, IFI = 0.96, and PCLOSE = 0.12. Overall results in Table 3 display no concerns of an oddity. The structural model is displayed in figure 1.

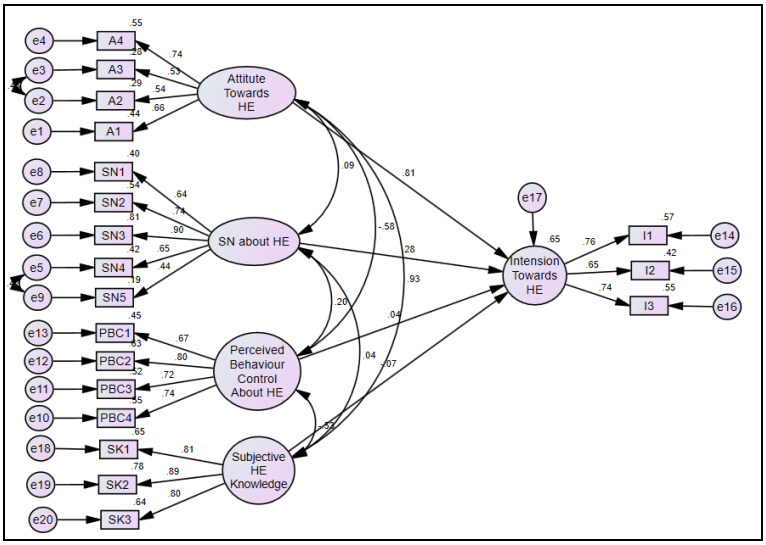

Figure.1. Structural Model

Source: Author's own elaboration

Note: HE= Healthy Eating

4.4.3. Unstandardized Estimates

It is demonstrated from the results that the total model is calculating 65% (R2 = 0.65) variance in intentions towards HE behavior as shown in Figure 1 above. Likewise, the variance percentage described in intentions towards HE by attitude towards HE is 81% (R2 = 0.81), the percentage of variance explicated by Subjective norms about HE is 28% (R2 = 0.28). Similarly, the proportion of variance explained by perceived behavioral control is 4% (R2 = 0.04). The fraction of variance given by Subjective HE knowledge is 7% (R2 = -.07), and according to Arbuckle and Wothke, (2004) negative sign indicates that with an increase in Subjective HE knowledge there is a 7% decrease in Intentions towards HE.

4.4.4. Moderating Effects of Subjective knowledge about HE

Moderation analysis is a type of regression in which the inspection of the impact of the independent variable on the dependent variable is explained under the influence of the moderator which is the third variable (Bryman, 2016). The present research suggested three hypothetical relationships proposing a moderating effect among independent and dependent variables which are shown in Figure 1. The overall moderation model explained 80% of the variance (R2= 0.80) which means that the contingency effect is verified statistically. In the presence of the influence of subjective knowledge about HE, the relationship between attitude towards HE and HE intentions is further strengthened given by 86% of the variance (R2= 0.86). Similarly, the existence of the effect of subjective knowledge has also moderated the other two relationships.

4.4.5. Hypothesis Testing

The hypotheses of this research are tested using path estimations, critical ratios also known as t-values and p-values. Associations amongst variables are substantially important when t-values are greater than 1.96 and p values are lower than 0.05. Out of six hypotheses, one is rejected and five are not rejected. Perceived behavioral control's (PBC) influence on intentions (I) is overruled according to the interpretations of the results. This can be a result of the contingency effect of Subjective knowledge which suppresses the effect of PBC on I, as supported by the results of hypothesis 6 (H6). The regression weight of H1 and H4 clarifies that the presence of Subjective knowledge strengthened the relationship between Attitude and intentions about healthy eating. Table 2 is exhibiting fallouts of hypotheses testing.

Table.2. Hypothesis Testing

Hypotheses	Estimate	S.E	t-value	P-value	Verdict
H1: Attitude ⟶ Intension	0.81	.420	2.087	0.03	Accepted
H2: Subjective norms ⟶ Intension	0.27	.059	4.238	***	Accepted
H3: Perceived behavioral control ⟶ Intension	0.04	.072	.510	0.61	Rejected
H4: Attitude ⟶ Intension ↑ Subjective knowledge	0.86	.032	27.6	***	Accepted
H5: Subjective norms ⟶ Intension ↑ Subjective knowledge	0.29	.021	12.0	***	Accepted

H6:	Perceived behavioral control ⟶ Intension ↑ Subjective knowledge	0.095	.026	2.97	0.003	Accepted

Note: S.E: Standard Error, t-value: Critical ratio ≥1.96, p <0.05
***** p≤ 0.05**

Source: Author's own elaboration

5. Discussions and Conclusion:

A higher grasp of women's and their families' subjective experiences was associated with HE in women. Women with more HE consumption had more knowledge. Maternal and other female guardian counsel may have been less open to women in their fifties and sixties, particularly married women. These results were true even when HE was subclassified by nutritional characteristics. Although the sample size was too small to detect a meaningful link for certain items, higher women's understanding may have been linked. Investigations have revealed that attitude towards HE and Subjective norms about HE positively influenced the intentions towards HE while perceived behavioral control of HE did not appear to affect the intentions towards HE. The complete model has explained 65 % of discrepancy in female adolescents' intentions towards HE which and an acceptable percentage for a model to define the dependent variable. The discoveries from the research have also pointed out that TPB used in the present work has been verified to be a worthy approach as it explicated an approved percentage of variances with the given measures of the variables.

5.1. Relationship between Attitude towards HE and Intentions towards HE

Investigating the predictors of intentions towards HE of female adolescents, in the first hypothesis (H1) of the current scholarship, the researcher has projected a significant influence of attitude towards HE on intentions towards HE. The fallouts from the statistical analysis have clarified that a positive relationship exists between the attitude of female adolescents towards HE and their intentions towards HE behavior ($\gamma = 0.81$, $t = 2.08$, $p = 0.03$).

The results described that the measures (body image, cost of healthy food, convenience in terms of ease and knowledge) constituting attitude towards HE positively influences the intentions towards HE. Knowledge concerning nutrition, person's apprehension on the physical appearance, high cost of healthy options, and time-consuming efforts to prepare food is proved to affect the healthy eating behavior among individuals (Asakura et al., 2017; Fayad Kobrossy, 2014; Shephered et al., 2006; Shrestha et al., 2017; Stevenson et al., 2007). The present investigation has presented that if the female adolescents have concerns about physical appearance, awareness about HE, decent family income, and easy healthy foodstuff (e.g. fruits) to resolve convenience issues then they would develop a positive attitude towards HE.

5.2. Relationship Between Subjective Norms About HE And Intentions Towards HE

A constructive relationship between subjective norms about HE and intentions towards HE has been proposed by the researcher in the second hypothesis (H2) to predict healthy eating intentions in female adolescents. From the outcomes of the statistical examination of the collected data, it has proven that a fruitful relationship is present between subjective norms and intentions concerning healthy eating behavior as the t and p values

are significant ($\gamma = 0.27$, $t = 4.23$, $p < 0.05$). In the existing scholarship, subjective norms are determined as the normative views which an individual own by the guidance of their parents, family members, and friends.

As stated previously, the measures of subjective norms about HE (parental HE behavior, conformity to parental behavior, family HE environment, friends' norms, and conformity to friends eating norms) constructively impact the intentions towards HE. Youngsters relate the home environment and importantly parents to healthy eating (Shephered et al., 2006) while friends can impact the intentions negatively if inspire unhealthy intake (Bazillier et al., 2011). Parents prevent harmful consumption activities in children while friends promote them (Salvy et al., 2010). The statistical results of the current research have described that if the female adolescents conform to parental, HE norms and defy friends' unhealthy norms then they would have helpful subjective norms influencing the intentions towards HE positively.

5.3. Relationship Between Perceived Behavior Control of HE And Intentions Towards HE

In the third hypothesis (H3), it is estimated that perceived behavioral control of HE influences HE intentions. However, the outcomes of the data examination have clearly expressed that there is no significant relationship between perceived behavioral control of HE and intentions towards HE. The statistical results inferred the rejection of H3 with non-significant t and p values such as γ is 0.04, t along with p values are 0.510 and 0.61 respectively. The previous literature has shown that perceived behavioral control influenced healthy eating in children positively (Bazillier et al., 2011). But the consequences of the present investigation have overruled the fallouts of past texts. It is obvious from the significant t and p values ($t > 1.96$, $p < 0.05$) of these measures of perceived behavioral control of HE that these measures are authentic and approved from the prior works. But, observing the perceived behavioral control of HE in female adolescents, these measures are not providing positive results which may be characterized as a limitation.

5.4. Moderation Effect of Subjective Knowledge About HE

According to the fourth, fifth, and sixth hypotheses (H4, H5, and H6) of the study, it has been proposed that the subjective knowledge about HE is acting as a moderator variable. The moderation effect of subjective HE knowledge was proposed between the three relationships mentioned above (e.g. attitude-intentions (H4), subjective norms-intentions (H5), and perceived behavioral control-intentions (H6) relationships). The data exploration has proved the contingency effect of subjective knowledge between independent and dependent variables by demonstrating significant t and p values. The entire moderation model demonstrated 80% of the variation ($R2 = 0.80$) in the dependent variable because of the moderating variable which further authenticates the results of this study.

The relationship between healthy eating attitude and intentions is strengthened by the influence of increased subjective knowledge ($\gamma = 0.86$, $t = 27.6$, $p < 0.05$) were a significant p-value indicated that the H4 is supported by the statistical inspection. As Fu and Elliot (2013) mentioned that higher level of perceptual knowledge not only influences intentions but also fortifies the impact of attitude on the intentions. Similarly, this research has also confirmed the strengthening of the HE attitude-intentions relationship in the presence of moderating effect of subjective knowledge. Subjective norms might not be affected by subjective or objective knowledge, however, Fu and Elliot (2013) explicated that if a person perceived that she/he possesses less knowledge,

then she/he would count on the guidance by social members (family, friends, and society). The results of this study are in line with the mentioned rationale that lower perceptual knowledge has made the HE subjective norms-intentions relationship stronger and higher subjective knowledge weakens the stated link. Perceived behavioral control of HE has come up with interesting and debatable fallouts. In the sixth hypothesis (H6) of the thesis, the researcher has intended that the relationship between perceived behavioral control of HE and intentions towards HE is destructively moderated by subjective knowledge about HE. This has been verified by the results which showed that the moderating effect of subjective HE knowledge on perceived behavioral control-intentions relationship is statistically significant with substantial t and p-value ($\gamma = 0.095$, $t = 2.97$, $p = 0.003$). The examination of statistics, thus, inferred that the high perception of personal knowledge lowers the influence of perceived behavioral control on intentions towards HE in female adolescents.

5.5. Practical Implications

The research also has policy consequences. Revealing facts may assist encourage women to purchase healthier foods? The right knowledge about ingredients and production methods may help women purchase healthier foods. In addition, the study's results assist retailers to underline the significance of knowledge. It may also help providers promote the benefits and reliability of healthy meals. Second, this study aids governments in focusing on health, which benefits both the environment and industry. To sum up, the study suggests that traditional natural product suppliers might gain market share by emphasizing product attributes like naturalness, which promote healthy eating intentions.

5.6. Limitations

First, the study has determined the predictors of HE intentions and not the actual behavior. However, it is not necessary that intentions towards a particular behavior can wholly describe the actual behavior. A longitudinal or time-lagged study is recommended as future research to determine actual HE behavior in female adolescents. Another limitation can be seen in terms of homogeneity of the sample as all the respondents are investigated in their educational environment where they can respond under the influence of one another. Therefore, it is a prerequisite that the respondents should be surveyed in a free setting where their responses could not get influenced by their parents, friends, or others and be selected using a competitive sampling technique.

The outcomes of the structural model have discovered that perceived behavioral control of HE is not significantly predicting the intentions towards HE. While the outcomes of moderation revealed that higher the perception of personal knowledge of the female adolescents weaker would be the relationship between, HE intentions and perceived behavioral control. Thus, it can be argued that the insignificant result of H3 was because of the contingency effect that has been proposed in H6 and supported by the statistical examination of the data. Still, there is prominently an unrevealed grey area and yet to be investigated further.

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