

**THE LINK BETWEEN SELF-EFFICACY AND NUTRITION KNOWLEDGE  
BELIEFS: FINDINGS FROM SOUTH AFRICA****Xazela NM<sup>1</sup>, Chinyamurindi WT<sup>2\*</sup> and H Shava<sup>2</sup>****Willie Chinyamurindi**

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## ABSTRACT

Nutrition knowledge is an important factor leading to the promotion of good nutrition practice. Good nutrition practices can be linked to assisting, not only individuals, but also society in general to adopt healthy life-style practices that can prolong life. Calls exist within the literature for research that understands further how nutrition knowledge can be promoted at individual and community levels. Answering such research calls can also be the basis for useful practitioner interventions on the ground. Embedded within these calls is the need to also explore the role of individual-psychological factors on aspects of nutrition. Further, there is also need to pay attention to issues that affect the youth market, especially their attitudes towards issues related not only to nutrition practices but also nutrition knowledge. This research gives focus in determining the relationship between self-efficacy as an individual psychological factor and nutrition knowledge amongst a sample of youths residing in a rural community in South Africa. The study adopts a quantitative research approach using the survey design technique involving a sample of 150 youths residing in a rural community. The findings reveal two findings. First, concerning the age and gender, no significant effect existed with nutrition knowledge. Second, self-efficacy significantly predicted nutrition knowledge among the youth. Based on the findings, suggestions are made that promote and link individual self-efficacy beliefs to nutrition knowledge. At the core of this could be channels of expression through behaviour change and information acquisition as key conduits to promoting individual self-efficacy. Finally, practitioners on the ground can use the findings of the research as they implement targeted interventions that promote good nutrition practice. This can involve seeking ways that encourage the development of individual self-efficacy given its link (as found in this study) to nutrition knowledge.

**Key words:** Youth, self-efficacy, rural community, relationship, nutrition knowledge, well-being



## INTRODUCTION

In South Africa, obesity rates have been steadily increasing over the past years. A recent national survey reveals that 30% of all girls living in rural areas are obese [1]. Consumption of unhealthy foods and beverages as well as a sedentary lifestyle remain issues amongst rural youths [2]. The rate of fruit and vegetable consumption remains low in both rural and urban areas [3]. The lower rates of fruit and vegetable consumption could be as a result of rural areas not having amenities providing access to healthy foods [4, 5]. Additionally, unhealthy eating habits amongst the youth could also be as a result of easy access to school food trucks and informal traders selling foodstuffs of low nutritional value, which are high in fats and sugars [6]. A key element in promoting healthy dietary choices is paying attention to individual and societal issues in the environment [7]. One such individual and societal issue concerns nutrition knowledge. Scholars have defined nutrition knowledge as consisting of information concerning aspects related to how individuals and society develop, for instance, healthy-eating behaviours [8]. Calls exist for research that explores those factors that influence nutrition knowledge [9]. One such important factor concerns individual factors such as self-efficacy.

### Self-efficacy

The main theory underpinning the study is the self-efficacy theory by Albert Bandura [10]. The theory states that beliefs are vital for human motivation and behaviour. It also argues that beliefs also influence the actions that can affect an individual's life [10]. Thus, beliefs are regarded as an individual's ability to manage and accomplish a situation using a set of skills they possess, such as self-efficacy [10]. The main principle behind the theory is that individuals are more likely to engage in activities for which they have high self-efficacy and less likely to engage in those they do not. Individuals are believed to behave according to their beliefs [11]. Therefore, self-efficacy influences an individual's ability or motivation to learn and hence, one's performance [11].

In this study, it is hypothesized that self-efficacy, which is achieved through knowledge, understanding, and skills development, is vital in facilitating healthy eating habits among the youth in South Africa. Self-efficacy stems from the belief that an individual can undertake a certain behaviour under a specific situation [12]. Self-efficacy is, therefore, regarded as essential in behaviour change and continuance of newly acquired behaviour. Self-efficacy provides an individual with the necessary confidence in their ability to engage in healthy eating habits, subsequently having acquired new nutrition knowledge and the benefits of healthy eating [13]. Studies on self-efficacy have been conducted and show support on self-efficacy as a predictor not only of body weight [14, 15] but also nutrition knowledge [16]. This positions the importance of psychological constructs such self-efficacy as precursors not only to health behaviours but also nutrition issues [17, 18, 19].

Past studies have revealed that nutrition knowledge is one of the many factors that influence eating habits [20, 21]. The factors which influence healthy eating habits are perceived consequences of certain behaviour, beliefs about certain behaviour, skills that are required, and social and physical environments of the individual [22]. Furthermore,



it has been observed that many individuals value taste, convenience, and price much more than nutrition [21, 23]. Some divergent views have found nutrition knowledge to influence individual eating habits [21].

According to Naeeni *et al.* [24], some factors influence an individual's nutrition knowledge and differences in nutrition knowledge. For instance, old people usually eat more fruits and vegetables than the youth. This is so because as people age, they tend to care more about healthy eating since the benefits of healthy eating will be more apparent and noticeable [24]. Lastly, literature shows that age and gender also influence nutrition knowledge and eating behaviour [25].

This study provides a first insight into the relationship between self-efficacy and nutrition knowledge among a sample of young adults in South Africa. There is an emerging stream of work that is exploring the relationship between micro, macro, and meso factors on nutrition [26]. There is need to understand the linkages between self-efficacy and nutrition knowledge among the youth. Thus, the study aimed to understand the relationship between self-efficacy and nutrition knowledge among youth in a rural community.

## MATERIALS AND METHODS

### Study area and design

This study was undertaken in rural South Africa, in the Eastern Cape Province where 150 youth participated of which 57% were female and 43% were male. The majority of the youth who took part in the study were university students, educated enough to make sense of the questionnaire items, and engage with the research instrument. The study relied on quantitative data to answer the objective of the study. A positivist research paradigm was adopted. The study gathered data in a numerical format making use of a self-administered questionnaire to test the study's hypotheses formulated at the beginning of the study.

### Study population and sampling procedure

South Africa's Eastern Cape Province is the third largest province with a large population of youth ages 15 to 35 years. This province served as the sample for this research. Trained field workers walked in the communities where youth were residing to enlist potential respondents to take part in the study. Thus, we utilized a convenience sample.

### Data collection

Self-administered questionnaires were physically handed to willing respondents for completion in the presence of researchers, and the interviewer signed the consent form. This enabled the participant to ask questions where they could not understand and this helped to minimise on missing data. The study's research instrument was divided into three sections as adapted from previous research [27]. The first section collected data with regards to the demographic distribution of the respondents focusing on gender, age, and level of education. The second section of the questionnaire was designed to gather data concerning the independent variable which is self-efficacy. A 5-point Likert scale with 5 items was used to gather data and respondents indicated at the lowest rating that



they strongly disagreed (represented by 1) or at the highest rating that they strongly agreed with the statement (represented by 5). The final section of the questionnaire was designed to gather data concerning the dependent variable of the study, which is nutrition knowledge, also using a similar 5-point Likert scale with 12 items. Appendix A shows the actual questionnaire used for this study.

### Data analysis

Descriptive statistics were undertaken to develop frequency tables to analyse demographic distribution of the respondents concerning their gender, age, and year of study at a tertiary institution. The IBM Statistical Package for Social Sciences (SPSS) version 25 was used to analyse the data. In addition, simple linear regression analysis was undertaken to investigate whether self-efficacy predicts nutrition knowledge among the youth. The total means calculated were derived through the averaging technique.

Prior to the regression analysis, initial checks were performed on the data to investigate if it adhered to the assumptions of normality. In the study, the Shapiro-Wilk's test [28] was preferred to investigate whether the independent variable (IV) data (self-efficacy) and the dependent variable (DV) data (nutrition knowledge) were statistically and significantly different from a normal distribution. In this case, the IV score of .000 was found and is less than  $p = .05$  indicating that the IV data violated the assumptions of normality. Similarly, the DV data score of .000 was found and it is less than  $p = .05$ , indicating that the DV data also violated the assumptions of normality. As recommended by Field [28], that in instances where the assumption of normality is violated, researchers can allow for bootstrapped confidence intervals for the regression coefficients. This was a step that was followed.

### Ethical consideration

The ethics committee of the University of Fort Hare gave ethical clearance to the study. The participants' confidentiality and privacy were ensured through providing them with information that their names will not be mentioned in any of the data collected and in the description of the findings. Every participant signed the consent forms.

## RESULTS AND DISCUSSION

Respondents who took part in the study were youth (Table 1) and the dominating age category was that between 20 and 25 (62%), followed by that between 26 and 31 (26%). The majority of participants were doing their third year at a tertiary institution (43%), followed by those in the fourth year (37%).

To determine the effect of gender on youth nutrition knowledge, an independent sample t-test was undertaken. The results revealed that on average, female respondents had insignificantly higher ratings of nutrition knowledge ( $M = 19.12$ ,  $SE = .38$ ) compared to their male counterparts ( $M = 18.15$ ,  $SE = .48$ ). Further, to determine whether a respondent's age had a significant effect as far as their nutrition knowledge was concerned, one-way ANOVA was undertaken. The results revealed that age played a non-significant role as far as the youth nutrition knowledge levels were concerned  $F(3, 139) = 1.197$ ,  $p = .313$ .



From the simple linear regression output beginning with the model summary (Table 2), the results indicated that there was a positive correlation ( $r = .438$ ) between self-efficacy and nutrition knowledge. The results further indicate that self-efficacy accounted for 19.1% of the variation in nutrition knowledge among the youth ( $R^2 = .191$ ). Based on this, the study supports the idea that self-efficacy which is achieved through knowledge, understanding, and skill development is vital in facilitating healthy eating habits amongst youths [10]. The findings of the study are in line with previous research that found a significant correlation between nutrition knowledge and self-efficacy [16]. The findings also support previous research in showing the role of nutrition knowledge acquisition on behaviours related to attitude and self-efficacy [30, 31]. Results in Table 2 show that in the absence of self-efficacy, the study's regression model predicts that approximately 14% of the youth population can be regarded as knowledgeable on the nutrition subject. Also, the change in the outcome associated with a unit change in the predictor informs that given a unit change in self-efficacy, the nutrition knowledge level of the youth increases by 41.9%. Thus, self-efficacy makes a significant contribution to nutrition knowledge. Therefore, this study fails to reject the null hypothesis stating that self-efficacy predicts nutrition knowledge. Thus, according to Rabiei *et al.* [15], it is vital to increase knowledge, improve skills, and self-efficacy among the youth for them to achieve good health. In a similar vein, Demirci *et al.* [25] share the same sentiment with others [15] that the youth must focus on improving their self-efficacy and also change their eating habits.

The bootstrap confidence interval (Table 2) shows that the population value for nutrition self-efficacy is likely to fall between .254 and .626, that is greater than zero and less than 1; it, therefore, means that there is a genuine positive relationship between self-efficacy and nutrition knowledge in the population ( $p = .001$ ). The findings of the study heighten the importance on the need to develop university student's self-efficacy and how this potentially can affect nutrition knowledge. Some suggestions can be made as to how this can be done. First, there is a need to empower university students with much-needed information especially around nutrition knowledge as this can assist in developing their self-efficacy. This can be through targeted media that appeal to university students in assisting them place value on issues related to their role in nutrition information acquisition. Borrowing from the seminal work of Bandura, this can assist university students develop some form of mastery and ultimately in making better decisions [10]. A second way to develop self-efficacy could be through modelling experiences [12]. Role models can be useful in promoting positive messages around nutrition choices. This can be a precursor to promoting the importance that nutrition knowledge access can have in nutrition choice and lifestyle. Third, individual self-efficacy can be developed by promoting emotional and physical experiences [10], especially around nutrition choice and lifestyle. These experiences as argued by Bandura [12] provide cues that the university students through their mind and body can use to shape their sense of self [10]. In essence, such experiences become important when buttressed with nutrition knowledge to form the desired self.

A major limitation of the research is the sample used, a sample of university students. Caution should be taken when attempting to generalize the findings further. The findings,



however, provide useful insights into studying nutrition related behaviour patterns and can be useful in informing future research. An angle for future research could be to improve on the sampling weaknesses of this research. Further, a qualitative research inquiry informed by the findings of this research can be useful in understanding ensuing complexity around issues related to nutrition knowledge beliefs.

## CONCLUSION

The increase of consuming unhealthy food amongst the sample seems to be an increasing challenge, daily, as these communities also have to adapt to the urban lifestyle and challenges that are related low income, which results in not focusing on healthy eating habits. Rather they worry about their next meal. The study results have indicated that self-efficacy significantly predicts nutrition knowledge among university students. Based on this, some interventions can be proposed. For instance, youth advisors within the university can also encourage the youth in developing social cognitive issues such as knowledge and self-efficacy as they are critical in planning interventions to develop effective health promotion strategies which have a great impact in assisting a change of attitude for university students. This can be a useful basis for empowerment through provision of resources and knowledge.

## DEDICATION

This paper is dedicated to the memory of Dr Nomasonto Xazela (a co-author and lead investigator to this project). Dr Xazela sadly passed away during the preparation of this paper. We thank her for the valued contribution and commitment to the academic community in South Africa.

## ACKNOWLEDGEMENTS

The financial assistance of the National Institute for the Humanities and Social Sciences (NIHSS) and the National Research Foundation (NRF) (Grant 111818) towards this research is hereby acknowledged. Opinions expressed and conclusions arrived at are those of the authors and are not necessarily to be attributed to the NIHSS and NRF. The authors are grateful to the University of Fort Hare (UFH) community for participating in the study.



**Table 1: Summary of descriptive results on age and level of study**

Variables				
<b>Age</b>	<b>Below 20</b>	<b>20-25</b>	<b>26-31</b>	<b>Above 31</b>
%	4	62	26	8
<b>Year of study</b>	<b>1st</b>	<b>2nd</b>	<b>3rd</b>	<b>4<sup>th</sup></b>
%	7%	13%	43%	37%
<b>Gender</b>	<b>Male</b>	<b>Female</b>		
%	43	57		

**Table 2: The regression model summary**

Model	R	R square	Adjusted R Square	Standard error of the estimate	Durbin-Watson
1	.438 <sup>a</sup>	.191	.186	3.32714	1.544

Model		Sum of squares	df	Mean square	F	Sig.
1	<b>Regression</b>	380.176	1	380.176	34.343	.000 <sup>b</sup>
	<b>Residual</b>	1605.130	145	11.070	-	-
	<b>Total</b>	1985.306	146	-	-	-

Model	Variable	Unstandardised Coefficients B	Standardised coefficients Std. Error	Beta	t	Sig.
1	(Constant)	13.834	.867	-	15.958	.000
	Self-efficacy	.419	.071	.438	5.860	.000

Model	B	Bootstrap <sup>a</sup>					
		Bias	Std. Error	Sig. (2-tailed)	95% Confidence Interval		
					Lower	Upper	
1	(Constant)	13.834	.002	.959	.001	11.806	15.574
	Self-Efficacy	.419	.000	.095	.001	.254	.626

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

a. Dependent variable: Nutrition knowledge

b. Predictors: (Constant), Nutrition Self-efficacy

df: degrees of freedom; F: F-test; Sig.: significance





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## APPENDIX ONE: QUESTIONNAIRE ITEMS

### Section A – Biographical Questions

1. **Age** [Below 20 20-25 26-31 Above 31]
2. **Year of Study** [1<sup>st</sup> Year 2<sup>nd</sup> Year 3<sup>rd</sup> Year 4<sup>th</sup> Year]
3. **Gender** [Male Female Prefer not to State]

### Section B – Self-Efficacy

[Very Uncertain Rather Uncertain Rather Certain Very Certain]

How certain are you that you could overcome the following barriers?

4. I can manage to stick to healthy foods even if I need a long time to develop the necessary routines.
5. I can manage to stick to healthy foods even if I have to try several times until it works.
6. I can manage to stick to healthy foods even if I have to rethink my entire way of nutrition.
7. I can manage to stick to healthy foods even if I do not receive a great deal of support from others when making my first attempts.
8. I can manage to stick to healthy foods even if even if I have to make a detailed plan.

### Section C – Nutrition Knowledge Beliefs

9. To me personally, it is [Very Important Somewhat Important Not Too Important Not At All Important] to use salt or sodium only in moderation.
10. To me personally, it is [Very Important Somewhat Important Not Too Important Not At All Important] to have breakfast as it is the most important meal of the day.
11. To me personally, it is [Very Important Somewhat Important Not Too Important Not At All Important] choose a diet with plenty of fruits and vegetables.
12. To me personally, it is [Very Important Somewhat Important Not Too Important Not At All Important] to use sugar only in moderation.



13. To me personally, it is [Very Important      Somewhat Important      Not Too Important      Not At All Important] choose a diet with adequate fibre.
14. To me personally, it is [Very Important      Somewhat Important      Not Too Important      Not At All Important] eat a variety of foods.
15. To me personally, it is [Very Important      Somewhat Important      Not Too Important      Not At All Important] maintain a healthy weight.
16. To me personally, it is [Very Important      Somewhat Important      Not Too Important      Not At All Important] choose a diet low in fat.
17. To me personally, it is [Very Important      Somewhat Important      Not Too Important      Not At All Important] drink at least six glasses of water (250 ml) each day.
18. To me personally, it is [Very Important      Somewhat Important      Not Too Important      Not At All Important] to choose a diet with plenty of breads, cereals, rice and pasta.
19. To me personally, it is [Very Important      Somewhat Important      Not Too Important      Not At All Important] to eat meat because it is richer in protein.
20. To me personally, it is [Very Important      Somewhat Important      Not Too Important      Not At All Important] for fruit and vegetable consumption.