

A Study to Assess Relationship Between Nutrition Knowledge and Food Choices Among Young Females

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Abstract

Importance of proper nutrition as a vital aspect of lifestyle of females is emphasized in recent years. The objective of this study was to assess the nutritional knowledge of young females and its relationship with their usual food choices. The target population was young females of age 18 - 25; sample was 400 college students from different majors study subjects. It's a cross-sectional study and sampling technique used was convenient sampling. Research participants were asked to fill out a survey based Standard Nutrition Knowledge Questionnaire for Adults with some modifications and for food choices Food Frequency Questionnaire was used. The collected data was analyzed by Descriptive test and Spearman Correlation Coefficient ($P < 0.05$). Results showed that mean nutrition related knowledge of young females is 55.30% which is average but not optimal while mean nutrition related knowledge of food & nutrition students is highest 71.35% and business students is lowest 43.83%. There was a significant relationship between nutritional knowledge and unhealthy food choices. As nutrition knowledge increases, intake of most unhealthy foods decreases. Food choices of young females were adequate but not optimal, they consume foods from all groups daily but they lack variety in their diet. Therefore, it was concluded that overall nutrition knowledge of young females is average and food choices are also adequate but relation between these two factors is not positively significant.

Keywords: Nutritional Knowledge; Food Frequency Questionnaire; Dietary Behavior; Eating Patterns; Food Choices

Abbreviations

FFQ: Food Frequency Questionnaire

Introduction

In the recent years, the adequate nutrition has become one of the important aspects of healthy lifestyle. Lifestyle has changed rapidly in past few decades due to increased involvement of science and technology in personal life of mankind resulting in sedentary lifestyle [1]. As concern about proper nutrition increases need for proper nutritional knowledge a point of great importance. People are concern about their health and nutrition but they lack proper nutritional knowledge which influences their food choices greatly.

Eating behavior is complicated and an understanding of the factors that affect food choice is crucial and should give the attention for changing the dietary behavior of population. Variety of factors influences the food choices and eating behavior of young people. Some factors that could influence young females food choices include: peer influences, nutrition knowledge and beliefs, mass media, fast food, personal experiences, parental dietary habits and socioeconomic status. Nutrition knowledge has been shown to have a positive impact on food choices and healthy nutrition life style. Therefore, from above mentioned factors that influence individuals food choices this research mainly focuses on nutrition knowledge and study the nutrition knowledge and food choices of young females and correlation between these two variables.

While nutrition is a vital element of a healthy lifestyle, Nutrition knowledge is one of the factors that affect nutritional status and nutritional habits of individuals, families and societies. The status and explanatory role of nutrition knowledge is uncertain in public health nutrition. Public perception is that females are more concern about their physical appearance as well as health so they are more conscious about their diet and food choices. Research findings indicated that females had higher mean nutrition knowledge scores than males. The literature on nutrition knowledge and food choice is contradictory. Some researchers have shown that nutrition knowledge was positively related with making healthy food choices [2]. Other researchers however found a very little relationship between nutrition knowledge and food choices [3].

Nutrition knowledge and food choice among black students in South Africa by Health Behavior Research Unit, University of the North reveals that generally, students seemed to have below average nutrition knowledge levels. University students had significantly more nutrition knowledge than secondary school students. Dietary recommendations were associated with source of nutrients and diet-disease relationships, and sources of nutrients were associated with diet-disease relationships.

Therefore, the present study aimed to assess relationship between nutritional knowledge & food choices of young females. The study would be significant to investigate the nutrition related knowledge of young females. It will also be helpful to understand the relationship between nutrition knowledge and dietary behavior, and to assess its perceived influences on food choices of young females.

Materials and Methods

This is a survey based study to find out the general nutrition knowledge and food choices of young adults and relationship between these two variables.

Universe

Universe of the study were young adult females of age 18 - 25 years.

Study Design

The study design adopted for this research was cross-sectional study design.

Sample

Young females of age 19 - 24 from Kinnaird College for Women, Lahore College for Women University and Government College University.

Sample Size

The sample size for this survey research was N = 400.

Sampling Technique

Sampling technique used was convenient sampling.

Tools for Data Collection:

The two questionnaires were modified:

- Nutrition questionnaire
- A General Nutrition Knowledge Questionnaire

Both above mentioned questionnaire are combined and modified to form required questionnaire for assessing the nutritional knowledge and food choices of young females and also correlation between these two variables. The Questionnaire consist of three sections: first part consists of questions about food recommendations, second part asked about composition of some specific foods, and last part is about personal food choices. All questions are close ended. For assessment of nutrition knowledge scoring is done on the bases of each

write answer. Each right answer carries one score. After scoring, score of nutritional knowledge is converted into percentages. On the bases of percentage, nutritional knowledge is categorized into 4 categories; 0 - 25% (very low), 26 - 50% (low), 51 - 75% (average) and 76 - 100% (high).

Data analysis

Data was analyzed by using SPSS version 1.8. Tests applied were Spearman correlation test, descriptive test and cross tabs.

Results and Discussion

Proposed study was aiming to assess the relation between nutritional knowledge and food choices of young females of aged 18 - 25. 400 respondents participate in this study from leading colleges and universities of Lahore. Study justifies its purpose and results shows that nutritional knowledge and food choices are associated and subject of study also affects the nutritional knowledge of young females.

Variable	Minimum	Maximum	Mean
Age	18	25	21
Height	1.42m	1.75	1.62
Weight	29kg	80kg	55kg
BMI	12.6	32.3	21

Table 1: Demographic Table.

Results show that mean BMI of young females is 21 which falls in normal range according to WHO definition (18.5 - 24.9).

Nutrition Knowledge		
Maximum	Minimum	Mean
92	12	55.30

Table 2: Nutritional knowledge of young females.

In this research, Nutritional knowledge percentage varied greatly starting from 12% as a lowest and 92% as a highest. But mean nutritional knowledge is average (55.30%). Only 2% of respondent’s very low percentage and 34% of respondents has low nutritional knowledge. Majority of respondents (53%) have moderate nutrition related knowledge. Only 11% of respondents have high level of nutritional knowledge. In previous research is Iraq the average nutrition knowledge of female students was 56.71% which is in accordance with this research [4].

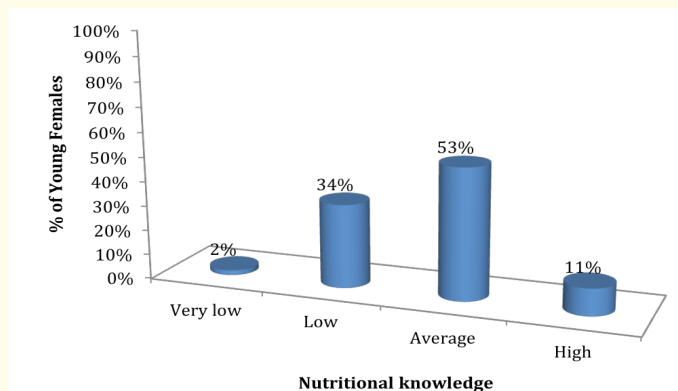


Figure 1: Nutritional knowledge of young females.

Second objective of the study is to assess the food choices of young females. Foods are categorized in six categories: dairy products, meat or protein substitutes, carbohydrate foods, fruits, vegetables and miscellaneous. Data collected reveals that females have enough variety in their usual food intake with selection of foods from each category. But variety of choices within the group is not adequate as they on consume some selected foods more frequently. Most frequently consumed foods are whole milk, egg, chicken, white bread, chapatti, sweet biscuits, vegetable salad, cooked vegetables, fresh fruits, soft drink and tea. And least consumed foods are skim milk, beef, brown bread, porridge, boiled vegetables, tinned fruits and honey. Another research in USA shows that most frequently consumed foods among college- age women were skim milk, white and dark breads, butter, fruit juices, coffee, cheese, tea and soft drink [5]. This is somewhere similar and somewhere contradictory with this research finds may be due to difference in culture and demographic factors.

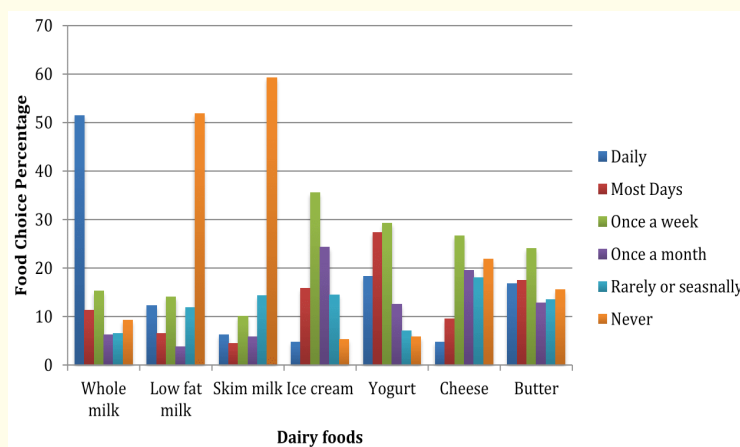


Figure 2: Dairy food choices among young females.

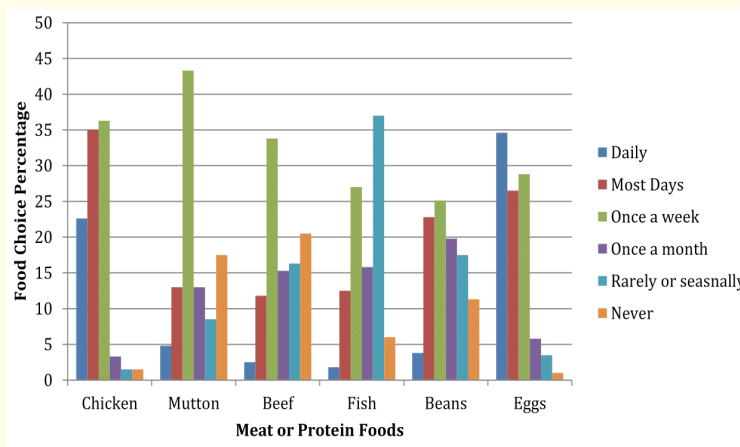


Figure 3: Meat or protein food choices among young females.

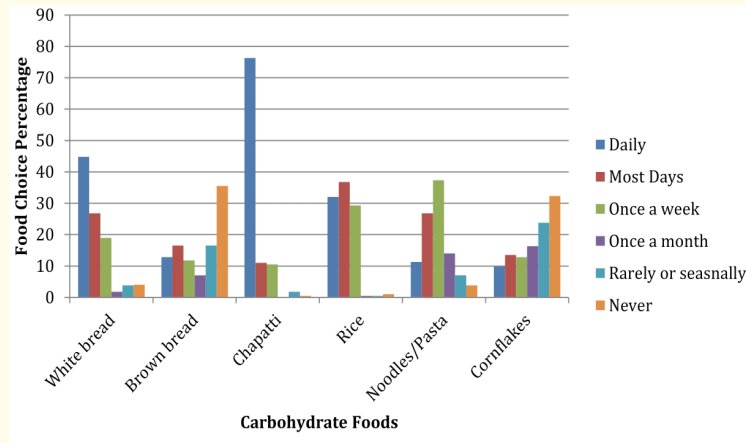


Figure 4: Carbohydrate food choices among young females.

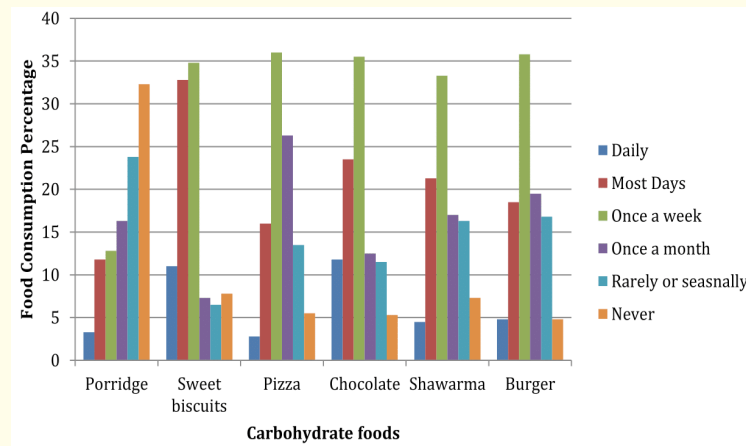


Figure 5: Other carbohydrate food choices among young females.

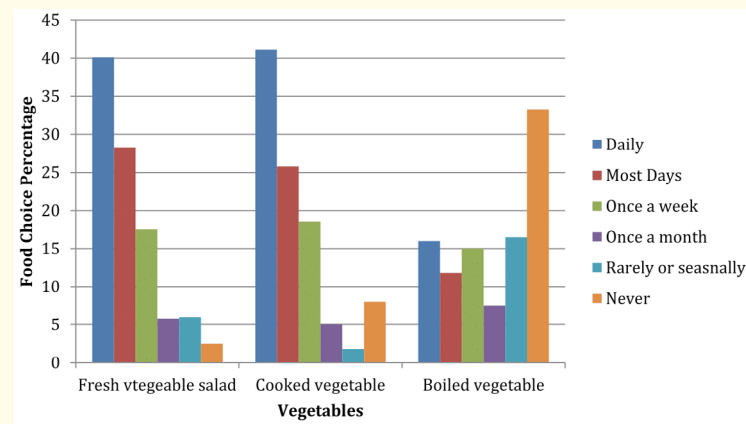


Figure 6: Vegetable choices among young females.

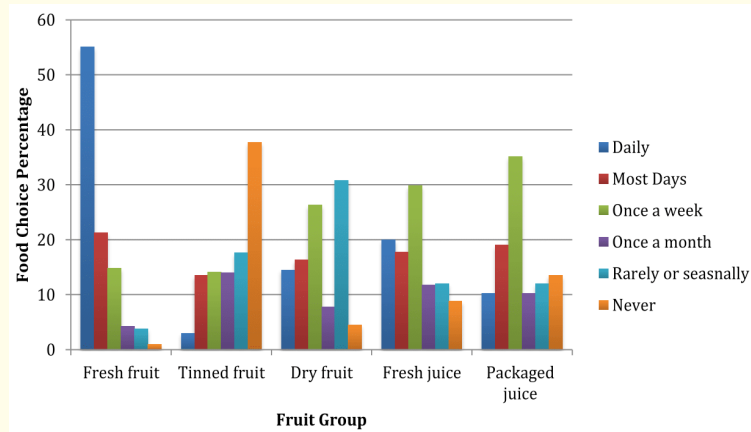


Figure 7: Fruit choices among young females.

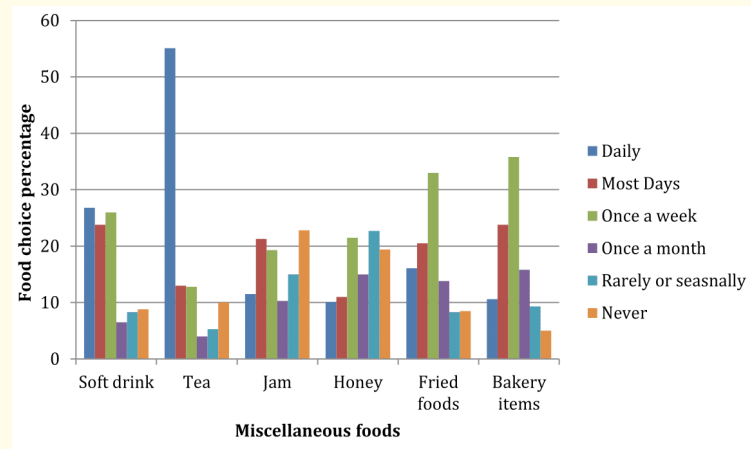


Figure 8: Miscellaneous group food choices among young females.

Food	r	p
Whole milk	-0.042	0.398
Low fat milk	0.081	0.104
Skim milk	0.024	0.635
Ice cream	-0.242**	0.000
Yogurt	0.007	0.896
Regular cheese	0.010	0.841
Butter	-0.101*	0.043

Table 3: Relationship between nutritional knowledge and dairy foods choices.

Results of Table 3 show the Spearman co-efficient of correlation between nutritional knowledge and dairy foods consumption. Results of correlation test between dairy products and nutritional knowledge percentage reveals that all dairy product choices do not have

significant relation with nutritional knowledge among young females. Only ice cream and butter have negative significant relation with nutritional knowledge. Spearman co-efficient of correlation value of ice cream and butter are -0.242** and -0.101* respectively, * represents significant relation and ** represents that its p-value contains more than one 0 and relation is more significant. (-) sign represents negative or reverse relation which means that as soon as nutritional knowledge of young females increase their consumption of ice cream and butter decrease that interprets that nutrition related knowledge has negative impact on unhealthy dairy products which is good for young females health. All other dairy products choices do not show any kind of positive significant relation with nutritional knowledge of young females. Previous researches have shown a positive and significant correlation with food habits and attitudes [4,6,7].

Food	r	p
Chicken	-0.097	0.052
Beef	-0.022	0.654
Mutton	-0.031	0.539
Fish	0.079	0.113
Beans	0.189**	0.000
Eggs	-0.081	0.108

Table 4: Relationship between nutritional knowledge and Protein food choices.

Results of Table 4 show the Spearman co-efficient of correlation between nutritional knowledge and protein foods consumption. Results of correlation test between Meat and protein substitute food products and nutritional knowledge percentage reveals that only one protein food choice has significant relation with nutritional knowledge but all other foods in this group do not show any significant relation with nutritional knowledge among young females. Spearman co-efficient of correlation value between beans and nutrition related knowledge is 0.189** and its p-value is (0.000 < 0.05) so relation is significant. It interprets that as soon as the nutrition related knowledge of young females increases their food choices from protein group also improves and they start consuming healthy protein substitute like beans which are also high in fiber and anti-oxidants.

Food	r	p
White Bread	0.093	0.064
Brown Bread	0.087	0.084
Chapatti	0.019	0.706
Rice	-0.165**	0.001
Noodles/ Pasta	-0.079	0.113
Cornflakes	0.059	0.241
Porridge	0.057	0.254
Sweet biscuits	-0.195**	0.000
Pizza	-0.043	0.389
Chocolate	-0.219**	0.000
Shawarma	-0.181**	0.000
Burger	-0.071	0.155

Table 5: Relationship between nutritional knowledge and Carbohydrate food choices among young females.

Results of Table 5 show the Spearman co-efficient of correlation between nutritional knowledge and carbohydrate foods consumption. Results of correlation test between carbohydrate food products and nutritional knowledge percentage reveals that all the carbohydrate food choice do not have significant relation, not even a single food show positive significant relation but some foods show negative or reverse significant relation with nutritional knowledge among young females. Rice, biscuits, chocolate and Shawarma consumption shows negative significant relation with nutritional knowledge. Spearman co- efficient of correlation value between nutrition related knowledge and these foods consumption among young females are: rice ($r = -0.165^{**}$) (p value = 0.001), sweet biscuits ($r = -0.195^{**}$) (p value = 0.000), chocolate ($r = -0.219^{**}$) (p value = 0.000) and Shawarma ($r = -0.181^{**}$) (p value = 0.000). It interprets that as soon as the nutrition related knowledge of young females increases their food choices from carbohydrate group also improves and they decrease consumption of unhealthy carbohydrate foods like rice which are high in starch and they are refined so their glycemic index is also high and nutrient content is low so they can raise the blood glucose levels and cause diseases like obesity and type 2 diabetes.

Food	r	P
Tinned or frozen fruit (any kind)	-0.044	0.376
Fresh Fruit	-0.001	0.990
Dry Fruit	-0.001	0.984
Fresh Juice	-0.027	0.587
Packaged juice	-0.158**	0.002

Table 6: Relationship between nutritional knowledge and fruit choices.

Results of Table 6 show the Spearman co-efficient of correlation between nutritional knowledge and fruit consumption. Results of correlation test between fruit product choices and nutritional knowledge percentage reveals that only packaged juice consumption shows negative significant relation with nutritional knowledge. Spearman co- efficient of correlation value between packaged juice and nutrition related knowledge is -0.158^{**} . It interprets that as soon as the nutrition related knowledge of young females increases their food choices from fruit group also improves and they start decreasing the choice of unhealthy fruit product like packaged juice which is high in added sugar and artificial flavor and low in natural nutrients like vitamin, beta carotene, minerals and essential fatty acids so its increased consumption may lead to weight gain and other health problems.

Food	r	P
Fresh salad	0.012	0.807
Cooked	0.001	0.990
Boiled	0.034	0.493

Table 7: Relationship between nutritional knowledge and vegetable choices.

Results of Table 7 show the Spearman co-efficient of correlation between nutritional knowledge and vegetable consumption. Results of study reveal that there is no significant relation between vegetable choices and nutritional knowledge of young females.

Food	r	p
Soft drink	-0.276**	0.000
Tea	-0.041	0.414
Jam	-0.157**	0.002
Honey	0.001	0.990
Fried foods	-0.013	0.802
Bakery Items	-0.165**	0.001

Table 8: Relationship between nutritional knowledge and miscellaneous foods choices.

Results of Table 8 show the Spearman co-efficient of correlation between nutritional knowledge and free foods consumption. Results of correlation test between miscellaneous food products and nutritional knowledge percentage reveals that all the food choice from this group do not have significant relation but some foods show negative or reverse significant relation with nutritional knowledge; soft drink, jam, bakery item, and pickle shows negative significant relation with nutritional knowledge. Spearman co-efficient of correlation value between nutrition related knowledge and these foods consumption among young females are: soft drink ($r = -0.276^{**}$) (p value = 0.000), jam ($r = -0.157^{**}$) (p value = 0.002), bakery items ($r = -0.165$) (p value = 0.001) and pickle ($r = -0.130^{**}$) (p value = 0.009). It interprets that as soon as the nutrition related knowledge of young females increases their food choices from this food category also improves and they start consuming less amount of unhealthy foods like soft drink which are carbonated beverages and contain high amount of added sugar which gave very much calories and contribute weight gain obesity and high cholesterol and lipid profile and hence cause diabetes and heart disease like strokes. Other harmful substances are also present like phosphoric acid which inhibits calcium absorption and contribute to weakening of bones, caffeine linked to heart problems, high cholesterol and lipid profiles and also cause some kinds of cancer and hence very injurious to health and unsafe to drink. Similar is the case with jam and bakery items they are high in simple or refined carbohydrates, calories and trans-fats.

Variable	R	p value
Major subject	-0.630**	0.000

Table 9: Relationship between nutritional knowledge and major subject of young females.

Major subject	Mean nutritional knowledge
Nutrition	71.35
Science	50.43
Arts	48.19
Business	43.83

Table 10: Comparison of mean nutritional knowledge and major subject of young females.

Results shows that young females nutrition related knowledge is greatly affected by their major subject of study. Spearman correlation test shows p value = 0.000 which interprets that there is very strong relation present between these two variables. In this study major subject was categorized in four major categories including: nutrition, science, arts and business. Out of which nutrition students have highest 71.35% of mean nutrition related knowledge, science students have average 50.43% of knowledge about nutrition. Arts students have slightly less knowledge 48.19% than science students and business students have lowest level of mean nutritional knowledge 43.83%. This is in accordance with previous researches which show that nutrition knowledge is related with field of study [8,9].

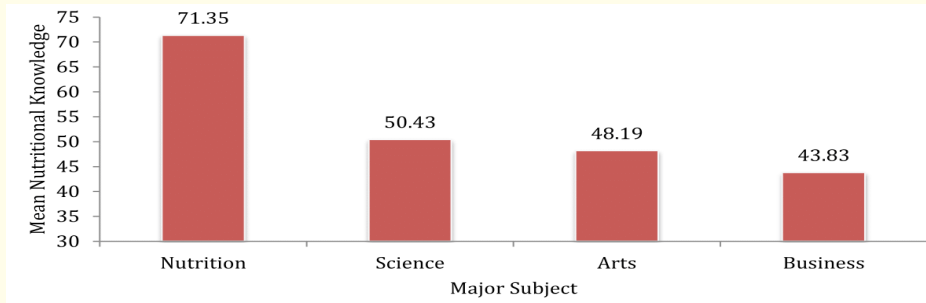


Figure 9: Comparison of mean nutritional knowledge major subject of young females.

Conclusion

The study conducted with a purpose to assess the nutritional knowledge and food choices of young females and the correlation between these two variables show positive results some foods from all food groups show significant relation with nutritional knowledge but in most cases relation is reverse and with unhealthy food choices. Almost all the healthy food choices are independent and do not show any significant relation with knowledge. When we assess these two variables separately, results shows that majority of females have average nutritional knowledge. Food choices of females are also acceptable with variety among groups but does not show adequate variety while selection of food within each food group. Another major factor which is affecting them is field of study with nutrition as a positive impact and business as a worst and arts and science are balanced on both sides.

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