The Determinants of Health Services Utilization in Southern Iraq: A Household Interview Survey

OMRAN S HABIB* AND J PATRICK VAUGHAN†

Habib O S (Department of Community Medicine, College of Medicine, University of Basrah, Iraq) and Vaughan J P. The determinants of health services utilization in Southern Iraq: a household interview survey. *International Journal of Epidemiology* 1986, 15: 394–402.
A household survey was conducted in 1982–83 in a sample of 324 households served by five health centres in two different areas of Southern Iraq. Information from each household was collected on socioeconomic factors, access to curative health services, sickness within the previous four weeks and the subsequent use of health services. Thirty seven per cent of people reported some sickness during the four-week recall period, giving an average of 40 episodes per 100 people per four weeks. The average consultation rate was 33 per 100 people and the annual estimated rate was 4.3 consultations per person per year. There was an average of 82 consultations per 100 sickness episodes with the highest rates for infectious and parasitic diseases (111) and hypertension and heart diseases (108), and the lowest for eye and ear diseases (52). The most important factors affecting utilization were level of perceived sickness in the household and the distance to the nearest health centre. Household income did not appear to be an important factor except for attendance at private clinics. The study suggests that the overall rate of utilization is sufficient for curative services but that now it is the quality of this care that needs to be examined.

For most people health care is initiated when they or their relatives recognize that they are sick, but the factors that result in a patient contact with the health services are very complex. Variations in response to sickness and in utilization exist from person to person and for any one person at different times.

Studies of health services utilization often seek to study the proportion of people who use the services and their frequency, the trends in service use and the possible mechanisms that may determine this use. Utilization studies, therefore, have a wide appeal to the policy makers, managers and providers of health care, particularly when they pinpoint mechanisms susceptible to change and better management. In addition, the ultimate justification of health services utilization studies lies in the relationship of service use to improving the health status of the population.[1,2]

Utilization is the outcome of complex, visible and invisible, interactions of so many factors, past and contemporary, which act at different stages and in different directions. It is impossible to observe the whole process or study it in detail.[3] This is why utiliza-

tion studies cannot be so comprehensive as to encompass all the possible factors that could play a role in this process. The diversity of means, intentions and findings is clearly reflected in the voluminous literature in this field.[4]

Health services utilization is related to such factors as perceived sickness or need, sociodemographic variables such as age, sex, education and family type and size, geographical proximity of services to the people, income and costs of care, as well as the level of services provision and their distribution.

It is generally recognized that perceived need is the major prerequisite leading to demand for and use of health services.[5-11] In addition, the knowledge people have about the available health services and their perception of the quality of these services as well as their satisfaction, may affect both initial contact with these services and compliance with any prescribed treatment.[12-19]

Health service utilization is related to sociodemographic variables such as age, sex, education, occupation and family size and type. All these influence behaviour and may be associated with different levels of health and sickness and subsequently with different levels of health services utilization.[2,20-22] Indirectly, sociodemographic variables account for a significant part of the variation in utilization behaviour, because

* Department of Community Medicine, College of Medicine, University of Basrah, Iraq.
† Evaluation and Planning Centre for Health Care, London School of Hygiene and Tropical Medicine, Keppel Street, London WC1E 7HT, UK.

of their association with important intervening variables such as perception of need, recognition and response to symptoms, knowledge of disease, perception of threat and benefit from care and the choice of sources of health care.[6,24–28]

The geographical proximity of services to people's homes is one of the most important factors that affects the utilization of health services, particularly in rural areas in developing countries. As distance increases the level of utilization decreases and vice versa.[29–33] The effect of distance is greater when it interacts with economic factors thus combining the effects of distance with time, transport, income and costs of care. People who live far away from services suffer a greater disadvantage regarding the use of services if they are also poorer and transport is expensive.

Economic factors are important in explaining part of the variation in utilization. It has been suggested that these factors account for some of the differences between need and demand[5,34] and that many of the reported differences for the low utilization of poor people appears to be related to their differential access to care, because if financial and other barriers were removed many of these differences disappear.[35]

The way in which health services are organized and delivered may also account for differential utilization. The view is that organizational characteristics of a health care system may be as highly related to variation in utilization as personal and other characteristics. Relevant characteristics, for example, are the patient entry into the health care system, referral practices and the level of supply of services and their distribution. Evidence to support this view can be found in a number of studies.[7,11,36–39]

Health care utilization can be viewed, therefore, from two different viewpoints: first, it can be seen as a dynamic process consisting of different stages through which the patient passes and the decisions that are made at different stages; second, utilization can be described as an outcome (measured by consultation rates) of the complex interaction of determining factors. This separation, however, is only artificial and really serves for descriptive purposes only. In reality, utilization is a process which involves both passing through stages and the involvement of complex interaction of determining factors. What we hope for is a better understanding of the process involved so that we can change the situation to improve the effectiveness of health services and thus to improve the population's health status.

In this paper we present the results of a household interview survey conducted in the rural areas of Southern Iraq during 1982–1983.

The overall aim of the study was to provide an in depth picture of the illness experience of the study population, its utilization of the available health services and the identification of major determinants of health services utilization.

METHODS

The study was conducted on a sample of households drawn from the surrounding populations served by five health centres: two in the district of Abul-Khasib in the Governorate of Basrah and three in the subdistrict of Al-Gharaff in the Governorate of Thee Quar (Figure 1).

A systematic sample comprising 337 households was drawn from lists compiled for the purpose of the study. These household lists included all those in the geographical catchment areas of the selected health centres and the sample included every 15th household with a random starting point. After selection the households were visited and the head was interviewed by the researcher. Data was obtained directly using an interviewer administered questionnaire to the head of the household or other responsible adult. The questionnaire was divided into four sections:

Section one was meant for the collection of data on administrative aspects, on accessibility factors (time and distance from sources of care) and on the general socioeconomic aspects of households.
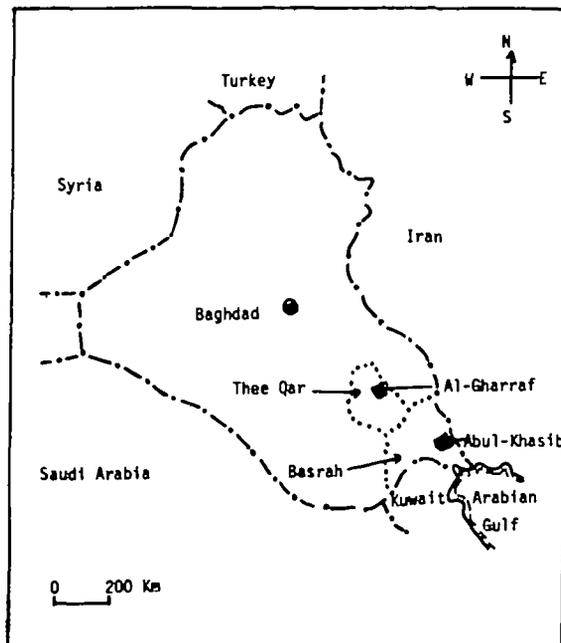

FIGURE 1   *Map of Iraq showing the location of the study areas in Basrah and Thee Qar.*

Section two was designed to obtain information on all members of the households regarding their age, sex, education, occupation and health status during the four-week period prior to the day of interview and the subsequent actions, if any, they took in response to reported sickness.

Section three included questions to obtain information on the opinions and viewpoints of respondents regarding their local health centres. *The last section* included questions on household income, monthly per capita income and a closing question about the reasons for bypassing local health centres and seeking care at private clinics.

All forms were checked at the end of each day for accuracy, completeness and consistency. Each household interview took about 30 minutes to complete. Only 13 households were excluded as non-respondents.

RESULTS
Response Rate
Out of the 337 households identified in the sampling process, 324 were successfully visited and interviewed, which provided information on 2933 individuals. The age and sex composition of the sample was similar to that of the reference population[40] and to the population of rural areas in Iraq,[41] with half (52%) being children aged 0–14 years.

Socioeconomic Status
The average household income was 158.9 Iraqi Dinars per month. Monthly per capita income was 17.8 Iraqi Dinars*. About three quarters of the sample households owned a television set and a fridge and/or deep freezer (74.1% and 75.3% respectively). Thirty four per cent had their houses built from modern materials and nearly 80% had an electricity supply. Pure water was available for 64.5% and latrines were available in 59.0% of the sample houses. The households were divided almost equally between nuclear and extended families.

Health and Sickness Episodes
Out of the 2933 individuals covered in the survey, the health status of 12 people was not known because they were away from their homes during the recall period. The remainder reported that 1074 people (36.8%) had had some sort of sickness during the recall period of the previous four weeks. The total number of sickness episodes reported was 1165. This gives an average of

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* Official exchange rate at the time of the study was: One Iraqi Dinar = 2 Pounds Sterling.

40.0 episodes per 100 people per four weeks and 108.7 episodes per 100 sick people during four weeks. The details are illustrated in Table 1.

For all people, five disease groups constituted nearly 59.6% of all reported sickness. These five groups were: diseases of respiratory system (21.6%), eye and ear diseases (11.8%), digestive system (9.8%), musculo-skeletal system (9.4%) and infectious and parasitic (7.0%) (Table 2).

Utilization of Health Services
During the four-week recall period, 956 consultations were made to different sources of modern health care by people who reported being sick during the same

TABLE 1 *Reported sickness episodes for the members of 324 households included in the study, based on a four-week recall period.*

People who reported no sickness		1847 (63.2%)
People who reported some sickness		1074 (36.8%)
Total reporting*		2921 (100.0%)
Nature of reported sickness episodes:		
	Acute	825 (70.8%)
	Chronic	340 (29.2%)
	Total episodes	1165 (100.0%)
Sickness rates:		
	a. per 100 people	40.0
	b. per 100 sick people	108.7

* Excluding 12 people whose health status was not known at the time of the study.

TABLE 2 *Distribution of reported sickness episodes classified by disease groups and the average number of outpatient consultations per 100 episodes during the four-week recall period.*

Disease group	% of total episodes	Consultations per 100 episodes
Respiratory system	21.6	79.3
Sense organs (eye and ear)	11.8	51.8
Digestive system	9.8	87.7
Musculoskeletal system	9.4	89.9
Infectious and parasitic	7.0	111.0
Unspecified fevers	6.9	101.2
Nutritional deficiencies	6.8	73.4
Skin diseases	6.5	84.2
Genitourinary system	4.7	80.0
Accidents	4.0	100.0
Obstetric and gynaecological problems	2.6	73.3
Hypertension and other heart diseases	2.2	107.7
All others	4.7	67.9
Total	100.0	100.0
Total number of sickness episodes	1165.0	1165.0
Total number of consultations	—	956.0

TABLE 3   *Total number of consultations and consultation rates per four weeks and per year.*

Total number of consultations made in four weeks to all sources of modern health care services	956
Average number of consultations (in four weeks):	
a. Per 100 people	32.7
b. Per 100 sick people	89.0
c. Per 100 sickness episodes	82.1
Consultation rate per person per year*	4.3

* The calculation of this rate was based on the formula:

$$\text{Annual consultation rate} = \frac{\text{No. of consultations made in four weeks}}{\text{No. of people in the sample}} \times \frac{52}{4}$$

period. These consultations were made in response to 1165 sickness episodes. This gives an average consultation rate of 32.7 per 100 people, 89.0 per 100 sick people and 82.1 per 100 sickness episodes. Using these numbers and assuming that the seasonal variations in the level of utilization were not marked, the annual consultation rate for the sample population was calculated to be approximately 4.3 per person per year (Table 3).

Utilization and Type of Sickness

Reported sickness episodes were classified into broad disease groups. Since each type of sickness might have a different significance, response to various sickness types could vary according to the severity and the threat they impose to patients. In Table 2 utilization rates are presented for different types of disease groups. The data shows clearly how consultation rates vary from one group to another. The highest rates were for infectious and parasitic diseases (111.0), hypertension and other heart diseases (107.7), unspecified fevers (101.2), and accidents (100.0). The lowest rates were for eye and ear diseases (51.8) and for the group (All others) which included ill-defined symptoms and illness (67.9). The overall difference was statistically highly significant (P<0.001).

Utilization and Distance

Figure 2 illustrates the relationship between utilization and distance between place of residence and the nearest health centre, which shows clearly that consultation rates decline sharply with increasing distance travelled. There is a suggestion that the decline was sharper for utilization of local health centres than for all sources. In both cases the difference was statistically highly significant (P<0.001).
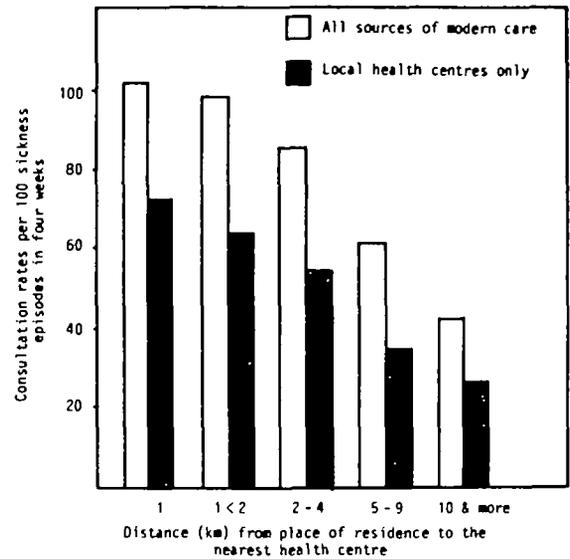

FIGURE 2   *Consultation rates by distance of residence from all sources of modern health care and from the nearest health centre.*

Utilization and Income

Patients were grouped into three arbitrary income groups according to the average per capita income per month in Iraqi Dinars. The relationship of utilization to income is indicated in Figure 3, which shows that consultation rates increase substantially with increasing income for total utilization (P<0.0001) but to a lesser extent when only local health centres were considered (P<0.005). For example, the total consultation rates go from 66.7 per 100 episodes for the low income group
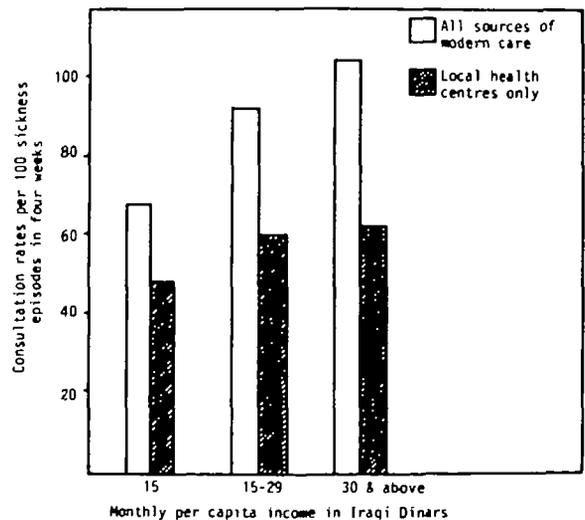

FIGURE 3   *Consultation rates for all sources of modern health care and for local health centres only by monthly per capita income.*

TABLE 4 *Average number of outpatient consultations per 100 sickness episodes in a four-week recall period by type of household, controlling for age, sex, nature of sickness, per capita income and distance to local health centres.*

Variables controlled for	Type of household		
	Nuclear	Extended	Total
Age in years			
0<1	93 9	102.5	98.6
1–4	78.8	84.9	82.5
5–14	67.3	71.3	69.4
15–44	79.9	86.2	83.6
45–64	80.3	95.1	90.6
65 and over	62 5	71.6	70.7
Sex			
Males	79.3	83.5	81 9
Females	75.8	86.2	82.3
Nature of sickness			
Acute	78.5	87.1	83.6
Chronic	74.6	80.1	78.3
Per capita income			
<15	70.7	63.8	66.9
15 and more	84.5	98.2	93.7*
Distance to local health centres			
<2	95.3	102.5	100.0
2–4	80.0	89.4	85.2
5–9	52.7	84.9	61.1
10 and more	34.7	55.6	42.2
For the entire sample	77.5	84.9	82.1

* The difference between nuclear and extended households was statistically significant (P<0.05).

(<15 ID) to 103.2 for those in the high income group (>30 ID).

Utilization and Type of Household
Table 4 shows consultation rates for nuclear and extended households (total utilization only) controlling for age, sex, nature of sickness, income and distance to the nearest health centre. The results show that with every variable, consultation rates were higher for patients from extended households than they were for patients from nuclear households, but the difference was not statistically significant (P>0.05) except for those in the income group 15 ID and more (P<0.05). Holding type of household constant, age, sex and nature of sickness show no significant association with utilization, whereas distance and income were both significantly associated with utilization (P<0.05).

MULTIPLE REGRESSION ANALYSIS
The previous description of utilization provides a straightforward analysis of essential data on health services utilization by the sample population. However,

the confounding effects of the different variables cannot be entirely taken into account when they are associated with each other in one way or another. In order to gain a greater understanding of the data, a stepwise multiple regression analysis was performed to determine the relative importance of the various variables used in explaining the variation in utilization. The analysis was performed at the household level where the unit of analysis was the household itself. The dependent variable is the number of consultations made in four weeks by members of a household to all sources of modern health care. The variables used in the regression equation are described in Table 5.

Tables 6 and 7 summarize the results of the analysis. For each variable, the standardized regression coefficient (Beta) and the P value are indicated, and for those showing a significant association with utilization, the R^2 values are also shown.

Regression Analysis for Total Utilization of all Sources of Care
When the analysis was carried out using the total utilization as the dependent variable, the results are summarized in Table 6. The utilization was significantly associated with sickness level (sickness index) in the household, distance, type of household, proportion of adult females in the household, proportion of sick people with acute sickness and ownership of a television set. These variables explained nearly 47.5% of the variance in utilization ($R^2 = 0.475$) and the contribution of different variables are indicated in the table by the figures for the corresponding R^2 values. Indeed, sickness level and distance accounted for two thirds of the explained variance. The type of health centre and the proportion of people aged 65 years and over were not significant at the 5% level but seemed to be marginally interesting. All other variables shown in the table were not associated with utilization at any significant level in the present analysis.

Regression Analysis Based only on Utilization of Local Health Centres
Table 7 shows the results of the regression analysis for local health centres only and excludes services provided by private clinics or by governmental health sources. The analysis was also performed at household level and the set of variables used were the same as those described in Table 5. The overall variance explained is similar to that for total utilization ($R^2 = 0.43$) but the significant variables were not the same. However, the main contributors to the explained variance were sickness and distance. In addition, type of household, distance to private clinics and place of residence also

TABLE 5   *Description of the variables used in the stepwise multiple regression analysis.*

Variables	Values
1. *Dependent variable*	
Number of consultations made by members of a household during the four-week recall period	0–18
2. *Independent variables*	
A. *Household characteristics:*	
—Type of household	Dummy Nuclear = 1
	Extended = 0
—Monthly per capita income (ID)	As stated 5–95 ID
—Education of head of household	As stated 0–18 years
—Ownership of a television set	Dummy Own = 1
	Do not own = 0
—Proportion of adult females in the household	Females aged 15 years and over by household size
—Proportion of children aged 0–4 years in the household	Children aged 0–4 years by household size
—Proportion of people aged 65 years and over in the household	People aged 65 years and over by household size
Place of residence	Dummy Urban = 1
	Rural = 0
—Sickness index in the household	No. of sickness episodes by household size
—Proportion of sick people with acute sickness	People with acute sickness by all sick people
B. *Organizational characteristics:*	
—Distance to local health centres (km)	As stated 0.1–18 km
—Distance to private clinics (km)	As stated 10–48 km
—Type of health centre according to most senior staff	Dummy Doctor = 1
	Med. assistant = 0

TABLE 6   *Household level analysis using stepwise multiple regression to predict the total consultations made to all sources of modern health care during the four-week recall period (N = 324).*

Independent variable	R^2	Beta	P value
Sickness index in the household	0.195	0.497	0.0000
Distance to local health centre (km)	0.141	−0.297	0.0000
Type of household	0.071	−0.321	0.0000
Proportion of adult females in the household	0.040	−0.181	0.0001
Proportion of sick people with acute sickness	0.018	0.135	0.0014
Ownership of a television set	0.010	0.133	0.0143
Total R^2	0.475		

Variables entered in the regression equation but which were not significantly associated with predicting the total utilization:

Type of health centre according to senior staff	0.075	0.0747
Places of residence	0.027	0.6257
Monthly per capita income (ID)	−0.064	0.1513
Education of head of household	−0.062	0.1590
Proportion of children aged 0–4 years in the household	−0.035	0.4127
Proportion of people aged 65 years and over in the household	−0.078	0.0830

TABLE 7   *Household level analysis for consultations made to local health centres, using stepwise multiple regression for sample households during the four-week recall period (N = 324).*

Independent variable	R^2	Beta	P value
Sickness index in the household	0.168	0.408	0.0000
Distance to local health centre (km)	0.120	0.317	0.0000
Proportion of people with acute sickness	0.048	0.234	0.0000
Monthly per capita income (ID)	0.028	−0.201	0.0000
Distance to private clinics (km)	0.021	0.323	0.0000
Type of household	0.018	−0.136	0.0018
Ownership of a television set	0.015	0.159	0.0059
Place of residence	0.013	0.217	0.0071
Total R^2	0.431		

Variables entered in the regression equation but which were not significantly associated with predicting the total consultations made to local health centres:

Type of health centre according to senior staff	0.079	0.0975
Education of head of household	−0.076	0.1066
Proportion of adult females in the household	−0.091	0.0637
Proportion of children aged 0–4 years	−0.010	0.8310
Proportion of people aged 65 years and over in the household	−0.056	0.2233

became significant. Type of health centre and the proportion of adult females in the household, though not significant (P>0.05), do seem to have some relevance to the variation in the utilization of local health centres.

DISCUSSION AND CONCLUSIONS

The pattern of services utilization reflects not only the current state of interaction between the people and the services, but also it reflects the historical situation in the country. What we observe now cannot be interpreted in isolation from the past. This is particularly true in Iraq where health services are becoming more available to wider sections of the population.

The results presented in this paper are specific to the population of Al-Gharraf and Abul-Khasib. Generalizing the findings to the rural population in other parts of Southern Iraq, though possible given the similarities in general characteristics of the population and their health services, is bound to be prefaced by the limits of this study.

Level of Utilization

The level of service utilization, as measured by consultations per 100 sickness episodes in four weeks and per person per year, is quite high by international standards. The level is more or less similar to that previously reported in Iraq,[42] Australia[43] and the United Kingdom.[44] However, our estimate of utilization is higher than that reported for Ghana[20] and Botswana.[31] As far as conclusions can be drawn from these kinds of comparisons, the level of utilization demonstrated in our study is high by international standards. A high utilization, however, says nothing about the appropriateness of the response to sickness or the quality of care received, but it must reflect, at least in part, the availability and easy accessibility of services to the population. These services must also be generally acceptable and affordable.

Determinants of Utilization

The present study demonstrates that despite the overall high utilization, it was not the same for all people in the study population. The results suggest that the two most important explanatory variables for utilization were perceived sickness or need and distance to the nearest health centre facility. The significant contribution of distance to the variation might indicate that the health services in the study areas were not equally accessible to different groups in the population. The level of utilization was markedly reduced with increasing distance. In this respect, our results agree with the findings of other previous studies.[7,16,29,31,32]

It is encouraging to notice that income was not important in predicting the total utilization by a household. Also it appears that income was not a marked obstacle to the use of local health centres.

One household characteristic, namely the type of household (nuclear versus extended) deserves special consideration because it seems to be related to utilization. From all the analyses in this paper, the results consistently showed that extended households were using the services relatively more than were nuclear households. This is difficult to explain but it might be that an extended household with more members has more spare time available. There is almost always someone who can help the sick to seek care and someone else who can look after the home.

Implications

Two aspects of the results deserve further discussion. Firstly, what are the problems related to the utilization of health services? Secondly, what suggestions can be made for improving utilization?

Despite the great efforts made by the Iraqi Government to provide health services to cover the population, there are still some problems related to the utilization of outpatient care. There is still an apparent inadequacy of services coverage and a significant variation in their utilization. The single most important factor related to variation is distance travelled by people to reach these services, once variation due to sickness or need is taken into account. The implications are clear. Some people are using services which they probably do not need (overutilization by those who live nearer to the services) and there are others who fail to use the services when they clinically need them (underutilization by those who live far away from services). This is one instance of where utilization studies have an important place. The present study suggests that there is a need to take measures to improve accessibility for those who are underutilizers and to control overutilization. Another implication is that a high utilization rate might indicate low quality of care which is leading to over-utilization. In future, greater attention must be paid to the quality of care provided at the outpatient clinics in Iraq. In general terms, the high utilization suggests the quantity of health care is sufficient, but that the quality of the health care being offered is at present not known.

ACKNOWLEDGEMENTS

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