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Socioeconomic status (SES) and psychiatric disorders*

Are the issues still compelling?

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Summary. One of the most consistent findings in psychiatric epidemiology prior to 1980 has been that socioeconomic status (SES) was inversely related to the recent prevalence of a variety of important types of disorder. The findings raised and re-raised major issues about the role of adversity in these disorders. In recent years, however, research interest in these issues has been declining. At the same time, marked changes have been taking place in the case identification and diagnostic procedures available for epidemiological research. In this paper, I inquire into whether these changes in diagnostic concepts and methods have led to a change in the "facts" that gave rise to the issues about the role of SES. I rely particularly on results from our on-going epidemiological research in Israel and from the National Institute of Mental Health (NIMH) Epidemiological Catchment Area (ECA) studies in the United States, reevaluate the shift away from research on the role of SES, and offer suggestions for future research.

Since the turn of the century and up to about 1980, we have had two generations of epidemiological investigations of the true (untreated as well as treated) prevalence of psychiatric disorders in community populations (Dohrenwend and Dohrenwend 1982). These consisted of a first generation of 16 pre-World War II studies and a much larger second generation of more than 60 post-war studies in communities all over the world. For the most part, these focused on prevalence during a period of a few months to about a year prior to the interview. For reasons of practicality and cost, there have been very few longitudinal studies that would permit assessment of incidence.

Between the two generations, there were marked changes in the concepts and methods used to identify and classify cases. Especially dramatic in its affect on the rates of disorders reported was the tremendous expansion of psychiatric nomenclatures following World War II (Dohrenwend and Dohrenwend 1982). This expansion reflected the experiences of the mental health professions with psychiatric screening for Selective Service and with subsequent psychiatric casualties in World War II (Raines 1952).

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Despite these changes in concepts and methods, there was remarkable consistency in the findings of the first and second generation studies with regard to relations between the psychiatric disorders and various demographic factors, most notably gender and socioeconomic status (SES). For SES, inverse relations were found with total rates aggregated across subtypes, for schizophrenia, for the personality disorders consisting largely of antisocial behaviors and substance abuse, and for symptom scales of nonspecific distress (Dohrenwend et al. 1980a; Dohrenwend 1983).

These findings have raised and re-raised over the years the classic social stress-social selection issue. The stress explanation, proposed by environmentally oriented theorists, holds that rates of some types of psychiatric disorder are higher in lower SES groups because of greater environmental adversity (Faris and Dunham 1939; Hollingshead and Redlich 1958; Leighton et al. 1963; Srole et al. 1962). The selection explanation, proposed by genetically oriented theorists mainly with reference to schizophrenia, argues that rates are higher in lower SES groups because persons with the disorders or other personal characteristics predisposing to the disorders, probably genetic in origin, drift down into or fail to rise out of lower SES groups (Jarvis 1971;Odegaard 1956; Stromgren 1950; Häfner 1988). Still others have suggested that, even for schizophrenia, where the selection evidence is strongest (Goldberg and Morrison 1963; Turner and Wagenfeld 1967; Eaton 1980), that both processes are operating (Dohrenwend and Dohrenwend 1981; Kohn 1972; Link et al. 1986). This issue has remained unresolved to this day (Dohrenwend and Dohrenwend 1969, pp 39–48; Dohrenwend and Dohrenwend 1981).

Interest in the stress-selection issue and, more generally, in relations between SES and various types of psychiatric disorders, however, has been declining even among researchers who focus on psychosocial factors. Angermeyer and Klusmann (1987) have plotted the decrease in publications on SES and psychiatric disorders from the period of 1966–70 to the period of 1981–85. They suggest that:

> recently, opinion seems to have swung toward the view that the social causation – social selection debate has ended in deadlock or has been decided in favor of the social selection hypothesis . . . Consequently, the social class

variable will have a reduced appeal for researchers theoretically and empirically concerned with the study of psychosocial factors determining the onset and course of psychiatric disorders (1987, p 3).

Moreover, they argue that:

in the field of epidemiology, these changes seem to coincide with the advent of and spreading interest in concepts which mirror the immediate environment of an individual – sources of stress and sources of protection from stress (1987, p 5).

And, as they point out:

there are studies that deal primarily on social class which also deal with stress, and studies primarily on social stress which also deal with social class. In these studies the relation between class and stress can be investigated. Most research on social stress, however, does not connect with social class or to any other variable on a societal level (1987, p 6).

Is this shift warranted? Do relations between SES and psychiatric disorders no longer present compelling research issues?

New evidence on relations between SES and psychiatric disorders

There have been a number of developments in psychiatry and related sciences in the United States and abroad that have changed the context in which epidemiological research since the second generation studies has been conducted. These changes have been so marked that it is possible to see in the new studies the beginnings of a third generation. Concern with systematizing and refining diagnostic systems is no longer concentrated in Europe, but, spear-headed by the Washington University group (Robins and Guze 1970; Woodruff et al. 1974), it has spread in the US. Its embodiments are the closely related Feighner criteria (Feighner et al. 1972), the Research Diagnostic Criteria (Spitzer et al. 1978) and, most recently, DSM-III (Task Force on Nomenclature and Statistics 1980). Semi-structured diagnostic interview and rating examinations such as the Present State Examination (PSE) (Wing et al. 1974) and the Schedule for Affective Disorders and Schizophrenia (SADS) (Endicott and Spitzer 1978), developed for clinical research with patients, have been adapted for epidemiological research. In addition, there have been attempts to build instruments specifically for epidemiological studies. The most influential of these, and the one most directly related to the new DSM-III, is the NIMH Diagnostic Interview Schedule (DIS) (Robins et al. 1981) which is a fully structured diagnostic interview designed to be administered by lay (i.e., non-clinician) interviewers.

Is it possible that these changes have altered the nature of the "facts" on which issues focused on relations between SES and psychiatric disorders are based? Are the re-defined disorders, like their first and second generation forerunners, inversely related to SES? Have the SES issues simply been defined away?

There have been only a few third generation studies using the more rigorous and explicit diagnostic criteria of DSM-III, RDC, or Feighner and focusing on specific psychiatric disorders. One of these is our own on-going epidemiological research in Israel which has used RDC criteria (Dohrenwend et al. 1987a). Another is the set of investigations in the United States called the Epidemiological Catchment Area Studies sponsored by the National Institute of Mental Health (Regier et al. 1984).

The fieldwork for the Israel study began in 1982–83 with a focus on four types of disorders that previous research suggested are inversely related to SES in males or females or, more usually, both genders: schizophrenia, antisocial personality, substance abuse (both alcohol and drugs), and major depression.

In designing the Israel study, we had questions about including major depression among the SES-related disorders on which we would focus most attention. The reason for our concern was that none of the first and second generation studies included this disorder as it has come to be defined in Feighner, RDC and DSM-III. We added major depression to the disorders on which we would focus mainly on the basis of the results on current prevalence and SES from two studies: the research of Weissman and Myers (1980) in New Haven, in which diagnoses were made according to RDC criteria, and the study of a sample of women in the Camberwell section of London by Brown and Harris (1978) in which a more idiosyncratic method was used, a method that had as its core a modified version of the PSE. In the Brown and Harris study, however, the threshold for severity in their depressive case rating was said to be at least as stringent as that of Feighner or RDC (Brown and Harris 1978, pp 58–59). This claim appears to have been corroborated by Surtees et al. (1983) in a separate study of a community in Edinburgh in which the Brown and Harris criteria, RDC, DSM-III, and PSE-CATEGO were all applied as alternative definitions of a case.

The Brown and Harris SES findings also appear to have been replicated in the Edinburgh study, although the findings are presented for overall cases rather than for cases of depression per se. Surtees et al. (1983) argue, as do Brown and Harris, that with the PSE-based diagnostic procedures they used, the large majority of the cases involve depression. These procedures focus on psychotic and neurotic types of disorders and there is very little of the former in the modest sized samples of the general population studied. However, Bebbington et al. (1981) conducted a study using the PSE in the same area of London as that studied by Brown and Harris and found a trend only for an inverse relation between SES and morbidity; the trend was statistically significant for males but not for females. Differences in sampling and in methods were involved, and the Bebbington et al. results were, like those of Surtees et al. (1983), presented for overall psychiatric morbidity rather than depression per se.

It is possible that relations with SES and total psychiatric morbidity based on the PSE vary in part as a function of the composition of the heterogenous group of neurotic

disorders on which these studies focus. Relations of the broad group of "neuroses" and SES were inconsistent in the first and second generation epidemiological studies (Dohrenwend and Dohrenwend 1969; Neugebauer et al. 1980). They appear to be inconsistent in more recent studies. Henderson et al. (1979), for example, using the GHQ (Goldberg 1972) and PSE in a two-phase case identification and diagnostic procedure, found no relation between neuroses and SES in an urban Australian study; by contrast, Hodiamont et al. (1987) using a similar methodology found an inverse relation between SES and total morbidity for males in a large urban health area in Holland; Vazquez-Barquero et al. (1987), also using a similar methodology in a rural community in Spain, found an inverse relation between total morbidity and SES for males but not for females. An interesting result that may contain a clue to these inconsistencies in relations between neuroses and SES is provided by Weyerer et al. (1982), in a study in a "semirural" area in Germany. These investigators, using the Clinical Psychiatric Interview developed by Goldberg et al. (1970), found that severe cases of neurosis were inversely related to SES, while mild neuroses showed a direct relationship with SES. Although there is no way to tell from their report, it is possible that the more severe cases were also the ones more likely to meet criteria for major depression.

Against this background of findings from first generation studies on relations between SES and various types of disorders and the findings from more recent studies that are relevant to whether the newer category of major depression is also related to SES, let us turn to the Israel study and ECA studies that used RDC and DSM-III diagnostic criteria. I will describe the Israel study first.

The Israel study

Our choice of Israel as the setting for epidemiological research on disorders that are inversely related to SES was based mainly on two considerations. First, we needed an open-class, highly stratified urban society that contained a set of advantaged and disadvantaged ethnic groups to test theoretical issues having to do with SES distributions of the various types of disorder (Dohrenwend and Dohrenwend 1981). Second, we needed a place with a Population Register that would make it possible to draw samples of birth cohorts from such ethnic groups.

Within this setting, we have focused on a full probability sample of about 5,500 young adults born in Israel between 1949, just after it became a state, and 1958. The goal was to contrast Israelis of European background with Israelis of North African background on rates of schizophrenia, major depression, substance abuse, antisocial personality, and also severe nonspecific psychological distress or "demoralization" (Dohrenwend et al. 1980b). The first step was to draw a random sample of 19,000 Israel-born adults in the desired age range of 24–34 from the Population Register. Demographic prescreening of 98% of the 19,000 was completed to obtain information that would permit appropriate stratification into the approximately 5,500 member study sample on the basis of gender, educational level, and ethnic background. Once selected into the stratified sample, respondents were given screening scales from the Psychiatric Epidemiology Research Interview (PERI) (Dohrenwend et al. 1980). Developed in the US, these had been re-calibrated in a previous pilot study in Israel (Shrout et al. 1986). Excluding the respondents who died or who were abroad who are being studied separately, we obtained the relevant PERI screening data from 93.3% of our cohort sample.

All of the screened positives (over 40% of the sample) and a subsample of over 15% of the negatives were given follow-up interviews by psychiatrists trained to administer a modification of the shorter version (SADS-L) of the Schedule for Affective Disorders and Schizophrenia (SADS) (Endicott and Spitzer, 1978) and to make diagnoses according to the Research Diagnostic Criteria (RDC) (Spitzer et al. 1978). Since this instrument was modified to provide more introductory history and to permit the dating of onsets of episodes, we call it SADS-I (for Israel). The 40 or so psychiatrists involved in the research were intensively trained by Itzhak Levav, who was himself trained at the N.Y. State Psychiatric Institute where SADS was developed. Their diagnostic interviews were tape recorded, permitting extensive quality and reliability checks. Our completion rate for this diagnostic follow-up is 94.1%.

We have published preliminary SES results from the portion of the Israeli sample living in Tel Aviv, about 40% of the total sample of 4,910 respondents (Dohrenwend et al. 1987a). In the analyses on which these initial results were based, we used educational level as the indicator of SES and required that the screening scale definition and psychiatric examination agree that the respondent was a case, although not necessarily on the type of case; with regard to type of case, we took the SADS-RDC diagnosis over the screening scales. More detailed analyses on the full sample will be based on investigation and reconciliation of divergences in case identification between the two methods. Meanwhile, on the basis of preliminary analyses of the Tel Aviv results, all of the key disorders, as defined by SADS-RDC-definite diagnoses, were inversely related to educational level; specifically, the key disorders showing the inverse relation were schizophrenia, major depression, anti-social personality, and substance abuse (alcohol and drug combined).

We are in the process of conducting more detailed analyses with the entire 4,910-member sample, with separate analyses of occupational prestige as well as analyses with educational level as the indicator of SES. We have also investigated the rates according to SES within males and females of European by contrast with North African background. Although the analyses of the nationwide sample are not complete, the results of these more extensive and detailed analyses so far indicate that the preliminary SES results for Tel Aviv will hold – with one possible exception. The exception is that, while major depression is inversely related to SES for both male and female respondents of European background, it shows no relation to SES for either males or females of North African background. These analyses are with RDC-definite cases only. We are conducting additional analyses to see whether RDC-defi-

nite should be combined with RDC-probable cases of depression and investigating as well how minor depression is distributed. We are also looking at the relation of the diagnoses of depression in the respondents of North African background to several of the PERI screening scales that should be related to depression (e.g., demoralization and suicidal ideation and behavior). These scales do show an inverse relation with SES in males and females of North African as well as males and females of European background. Meanwhile, these possible discrepancies should be viewed in relation to the full set of findings on relations between psychiatric disorders and SES in the Israel research to date. These findings are that schizophrenia, antisocial personality and substance abuse disorders are inversely related to SES in all four subgroups defined by gender and ethnic background, and that major depression shows an inverse relation to SES for males and females of European background.

The ECA studies

The NIMH-sponsored Epidemiological Catchment Area (ECA) collaborative program, in terms of number of settings and cumulative sample sizes, is the largest undertaking in psychiatric epidemiology to date (Regier et al. 1984). It includes samples of 3,000 to 5,000 persons from five sites in the US – the cities of New Haven, Baltimore, St. Louis, Durham, and Los Angeles are involved. In this research, the Diagnostic Interview Schedule (DIS) (Robins et al. 1981) was used for case identification and diagnosis. The DIS was developed explicitly for the ECA program and designed to provide current and lifetime diagnoses of many DSM-III disorders, with adaptations that make it relevant to the Feighner and RDC criteria as well. It was designed to be administered by lay interviewers as "a response to the desire to have an instrument that will, as closely as possible, replicate a psychiatrist's diagnoses . . ." (Helzer et al. 1985, p 666), something it does with markedly varying degrees of success for different disorders (Anthony et al. 1985; Burnam et al. 1983; Canino et al. 1987; Perry et al. 1987). It appears to show the strongest correspondence for alcohol abuse and dependence. The good convergence of the DIS with DSM-III clinical diagnoses for alcohol disorders is important in view of the unusually low rate of alcohol abuse in Israel which may make the findings on substance abuse from the Israel study atypical.

Holzer and his colleagues (1986) recently published an analysis of SES based on data from 18,000 respondents aggregated over all five ECA sites. They used a composite of income, educational and occupational ranks, based on US census data, as their measure of SES, and they focused on the DIS diagnoses of the sixmonth prevalence of schizophrenia, major depression, alcohol abuse or dependence, and cognitive impairment. The first three of these overlap with those in which we have been interested in the Israel research.

In an analysis that included controls on the variables of age, sex and specific ECA site, Holzer et al. (1986) found that all three DIS-DSM-III disorders showed an inverse relationship with SES. The relationship was strongest for schizophrenia and stronger for alcohol abuse and dependence than for major depression.

While the results seem relatively clear cut for schizophrenia and alcohol abuse and dependence, questions must again be raised about major depression. The relationship was relatively weak compared to the other disorders in the data analyzed by Holzer et al. (1986); moreover, in analyses of data from the New Haven ECA study by Leaf et al. (1986), the relationship with major depression appears to hold for some indicators of SES but not others. Major depression is not, however, one of the most reliable DIS diagnoses (Helzer et al. 1985), and there is a consistent finding in a large number of studies that symptom scales of depressed mood and distress show a strong and very consistent inverse relationship with SES (Link and Dohrenwend 1980). Of direct relevance, Eaton and Ritter (1988) have recently reported strong inverse relationships between a scale of DIS-DSM-III symptoms of major depression and both educational level and income in Baltimore. All of these scales, including the one constructed by Eaton and Ritter, are likely to be more reliable than the DIS diagnosis of major depression. The results to date suggest, therefore, that depression, as measured by the DIS, tends to be inversely related to SES, but that there may be some interesting exceptions that could be informative about the nature of this disorder and how we conceptualize and measure it.

Meanwhile, it is evident that the ECA findings on SES are, in general, consistent with our results in Israel. Holzer et al.'s (1986) conclusions could well apply to both studies:

> Our strongest impression from these results is that the much studied association between SES and psychiatric disorder is still alive and well . . . Despite considerable differences in conceptualization, measurement, and research methodology, the inverse relationship between SES and several specific psychiatric disorders emerges once again, in striking parallel to previous research (pp 269–270).

It would seem, then, that it is not possible to dismiss the issues posed by SES differences in rates of psychiatric disorders on the basis of a change in the facts about these relationships. Are there other grounds for thinking that the SES relationships are, although markedly robust over time and place and changes in concepts and methods, nevertheless of little importance?

A parallel with physical illness

Marmot et al. (1987) recently reviewed research on relations between physical disorders and SES, with an emphasis on mortality statistics. They point out that there is a widespread and persistent tendency for rates of a variety of important diseases to be inversely related to SES. They comment, ruefully, that:

> in epidemiological studies, there is a tendency to include social class, or socio-economic status, with as much regularity as with the inclusion of gender. All modern analyses must now 'control for' social class as they do for sex. To the

tired old epithet than an epidemiologist is someone broken down by age and sex, we must now add ". . . and social position" (p 111).

They point out that the reasons for the persisting SES differences are not clear and comment that:

the large social differences in mortality in many societies make social class analyses of crucial importance, but the largely unthinking use of social class is unfortunate. Not only may it contribute little to understanding of factors affecting health and disease, it may actually retard our understanding (p 111).

They call for more differentiated and theoretically meaningful approaches to SES as it describes factors that can affect exposure to disease agents and be accompanied by life styles that may put people at further risk.

For example, I have been using the term "socioeconomic status (SES)" rather than "social class" in this paper. It is more consistent with the measures of educational level, occupational level and income used in the epidemiological studies separately or in combination to indicate SES. Such variables are more relevant to investigating the Weberian concept of "class situation" (Weber 1946) than the Marxian conception of "class" based on the distinction between ownership and non-ownership (Marx 1967). The two conceptions are not mutually exclusive, and a case can be made for including the latter as well as the former in future research. Consider by way of illustration some findings reported by Marmot et al. (1987) from the Office of Population Censuses and Surveys longitudinal study in England and Wales. The results showed that within each category of SES based on occupation, owner/occupiers of their homes had lower mortality than renters. Marmot et al. (1987) speculate:

one interpretation of these data is that income, as reflected in occupational class, and wealth, as reflected in housing tenure and access to cars, are independent predictors of mortality. The challenge is to determine whether these predictors are causally related to mortality and, if so, how the links in the causal chain can be broken. If income and wealth differences were reduced, would social inequalities in mortality be correspondingly reduced or are other causal mechanisms at work (having) to do with prestige and self-esteem (related to) education, occupation (p 115)?

The shift away from research on SES

Clearly, it is not the facts about relations between SES and psychiatric disorders that have changed. Yet as with research on SES and physical disorders, there is dissatisfaction with research on SES in relation to psychiatric disorders, and with the continuing elusiveness of the meaning of the societal- or macro-level findings.

One consequence has been the change in social research from a macro-level focus on SES to a micro-level focus on individual stressful experience, as Angermeyer and Klusmann (1987) have shown. Parallel with this and responsive to striking advances in other fields, there has been a larger shift, at least in the United States, from an emphasis on social and psychological factors to an emphasis on genetic and biological factors in research on the etiology of psychiatric disorders (Heston 1988). Yet the facts of relations between SES and psychiatric disorders remain to be explained. If the role of adversity is to be tested, rather than ignored, where else is there a more promising point of departure than just this set of facts?

Let us consider further the shift described by Angermeyer and Klusmann (1987). These authors point out that a danger of the transition they trace in social research from emphasis on societal or macro-level analyses of SES to more micro-level analyses of individual stressful experiences is that "there is a possibility that social class issues may be simply ignored instead of elucidated by the new thrust toward stress research" (p 6). I agree. It is possible, however, that I attach more importance than do Angermeyer and Klusmann to continuing macro-level analyses and to investigating linkages between SES and individual experiences. Such an integration is not likely to be furthered by the view that the change "from social class to social stress" has occurred "after the paradigmatic potential of the concept (of social class) has been exhausted" (p 5).

The problem with the notion that the shift from social class is a shift from an issue in which "every conceivable aspect of it has been studied . . . and not much remains to be investigated . . ." (p 5) is that, in actual fact, the incorporation of SES into epidemiological research has been primitive so far as conceptualization and measurement are concerned. That is, epidemiological investigators have not undertaken theoretically informed, systematic analysis of the nature of SES in its relation to psychiatric disorders. Indeed, some of the tools, such as the detailed objective description of important characteristics of specific occupations have only become available relatively recently (Cain and Treiman 1981; Karasek et al. 1981). It could be argued that, far from research on the role of SES being exhausted, it has hardly begun on anything more than the gross levels, derided by Marmot et al. (1987), where the data on health and illness are conventionally "broken down" by ad hoc and uncritically selected indicators of SES.

In conclusion

Neglect of relations between SES and psychiatric disorders in epidemiological research is not due to changed facts about these relations or new knowledge that renders them unimportant. While it is true that the SES findings have thus far defied clear-cut interpretation, this tells us nothing about their importance. At least from the time Jarvis (1971) found in 1855 that the rates of "insanity" were proportionally 64 times as high in the "pauper" class as in the "independent" class, relations between SES or social class and psychiatric disorders have provided the most challenging clues to the role adversity in the development of psychiatric disorders. The problem remains what it has always been: how to unlock the riddle that low SES can be either a cause or a consequence of psychopathology.

I would like to argue that, in considerable part, the problem has been intractable because not enough use has been made of strong theory and theoretically relevant

measures from such relevant disciplines as genetics, psychology and sociology. Resources from these disciplines, such as family study methods (Weissman et al. 1986) and the detailed objective descriptions of occupations mentioned above (Link et al. 1986), are available. Moreover, given advances in case identification and diagnosis in third generation studies, these resources can now be brought to bear in far more sophisticated and precise epidemiological investigations.

Barbara Dohrenwend and I have set forth elsewhere our own ideas about how to investigate the key social stress-social selection issue posed by SES differences (B.P. Dohrenwend and B.S. Dohrenwend 1981; B.S. Dohrenwend and B.P. Dohrenwend 1981). The research in Israel that I described briefly above is designed to investigate these ideas. My colleagues in Israel and New York and I expect to be able to report the main findings over the next threee years.

Meanwhile, here are some suggestions that I hope will be helpful to others who pursue research on SES and psychiatric disorders:

1. Approach the conceptualization and measurement of SES with reference to stratification theories going back to those of Marx and Weber, modern sociological analyses of status attainment processes (Coleman et al. 1972), and modern measures of occupational characteristics (Cain and Trieman 1981; Karasek et al. 1981).

2. Unlike age, gender and ethnic status, an individual's SES can be determined in some part by his or her behavior. SES can usefully be considered in relation to these other demographic variables (B.P. Dohrenwend and B.S. Dohrenwend 1981).

3. Approach questions about the relation of SES to a particular type of psychopathology in the context of knowledge of relations between SES and a variety of psychiatric disorders and physical diseases, and the evidence on whether these disorders tend to run in families.

4. Approach a particular question about the relation of SES to psychiatric disorders in the context of knowledge about how SES relates to various normal personality characteristics, e.g., locus of control (Rotter 1966; Lefcourt 1976); values and attitudes (Kohn and Schooler 1983); and various stressful events and situations (Dohrenwend and Dohrenwend 1969, pp 131–150). In evaluating this knowledge and acting on it for purposes of one's own research, there should be awareness of the important measurement issues involved (B.S. Dohrenwend et al. 1984; Dohrenwend and Shrout 1985; Dohrenwend et al. 1987b).

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