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ABSTRACT

Hardiness, a personality factor suggested to be a determining factor in the promotion and maintenance of health behaviors, has been widely studied. S. Kobasa's hardiness factor, composed of control, commitment, and challenge, was reported to be an important component in explaining why some people can withstand stress without getting sick. A review of the literature supportive, as well as unsupportive, of Kobasa's research is given. Limitations of the hardiness research are also outlined. Although Kobasa's concept of hardiness is in serious jeopardy, it continues to provide avenues for further exploration and study. Current studies are looking at the effects of hardiness on family systems, specifically marital conflict (marital illness behavior). Other needed studies are the relation between physiological measures and hardiness, stress, and illness behavior, as well as the implications of hardiness development across the life span. (Contains 47 references.) (MKA)

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Hardiness: Is it still a valid concept?

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Abstract

Hardiness, a personality factor suggested to be a determining factor in the promotion and maintenance of health behaviors, has been widely studied. Kobasa's hardiness factor, composed of control, commitment, and challenge, was reported to be an important component in explaining why some people can withstand stress without getting sick. A review of the literature supportive, as well as unsupportive, of Kobasa's research is given. Limitations of the hardiness research is also outlined. The author presents evidence that Kobasa's original premise may still hold important avenues for further research.

Introduction

In recent years there has been a substantial body of research devoted to the relationship between stress and the development of illness. This research indicates that stressful life events contribute to physical illness (Dohrenwend & Dohrenwend, 1974; Gentry & Kobasa, 1984; Garrity, Marx, & Somes, 1978; Holmes & Masuda, 1974; Rahe & Arthur, 1968; Wyler, Masuda, & Holmes, 1968). Studies show that this relationship occurs consistently. Correlations between measures of stressful life events and illness range from .20 to .70, with the typical figure being .30 (Rabkin & Struening, 1976). Although .30 is not very large, it is generally considered a reliable figure.

The more stress a person experiences, the more chance of developing some form of illness. The research bears this out, but a question comes immediately to mind. Why do certain people experiencing high stress become ill and others with equal amounts of stress remain healthy? Why do certain people experiencing low levels of stress develop illness, while others with equally low levels of stress remain healthy? In other words, what accounts for individual reactions to stress? Antonovsky (1979) looked at factors that might buffer the effects of stress. Among the factors that he suggested are social supports, health practices, family medical history, lifestyle, coping styles, and personality factors.

Indeed, illness is not a natural consequence of stress. A number of factors that influence the development of illness during times of stress have been suggested. Family medical history, relatively little evidence of illness in family members, as well as lifestyle factors all make a difference. Diet, exercise, and sleep have been researched as variables affecting health (Coyne & Holroyd, 1982; Nikou, 1999). Social supports have been found to successfully mediate during times of high stress (Antonovsky, 1979). Health practices of the individual have also been found to have an effect. Pardine (1983) studied the effects of stress, finding that subjects with higher levels of stress reported poorer health practices and more negative health behaviors. Both health behavior and high stress level have been found to correlate positively with future illness. In short, those people that

altered their usual positive health behaviors during times of stress and replaced them with poorer health practices tended to be more likely to develop illness.

Langlie (1977) found that health practices influencing health status might also be affected by stress. His studies illustrated that subjects under high perceived stress regularly reported feeling a lack of control and also perceived the costs of maintaining good health practices as high. Several other studies have included similar results: Peptic ulcer sufferers routinely tend to increase their alcohol consumption in response to high stress, thus aggravating their illness (Weisman, 1956). It has also been demonstrated that subjects who smoke report smoking more during times of high stress, thus negatively affecting their health.

Since health care practices were found to mediate the effects of stress, then the next logical step was to determine through studies what factors might influence the maintenance of these behaviors. Personality disposition, for example, has been studied. A subject's personality affects health behaviors and can also affect how a person interprets stressful life events (Cohen, 1979). Several personality dispositions have been researched, including Type A and Type B personalities. Rosenman (1978) studied the role of Type A personality in the development of coronary heart disease. Kobasa pioneered another personality factor, which she called hardiness.

Kobasa described the hardy personality as belonging to those people who could withstand stress and not get sick. She suggested that hardiness was composed of three parts: control, commitment, and challenge (Kobasa, 1979). Those persons who could take high stress and not get sick had these three qualities. A person who was committed to self, perceived himself to be in control (internal locus) of his own life, and accepted stressful events as challenges was more likely to function without getting sick when faced with high stress. Kobasa theorized that those who got sick tended to have an external locus of control, felt life was meaningless, experienced powerlessness, complained of a lack of energy, and reported a general lack of involvement with those around them. Kobasa

hypothesized that hardiness might serve as a buffer against the harmful effects of stress (Kobasa, Maddi, & Kahn, 1979). This paper will discuss the research that supported Kobasa's initial hypothesis. Also reviewed will be limitations and shortcomings of the hardiness theory, as well as research that seemingly disprove her work.

Description of hardiness

It is important to understand the underlying characteristics of the hardy personality. Kobasa (1982) explained very clearly what she meant by each of the three components of the hardy personality. She stated that commitment "is a tendency to involve oneself in (rather than experience alienation from) whatever one is doing or encounters" (Kobasa et al., 1982, p. 169). The person who is committed does not give up easily but follows through, finishing tasks. Commitment means an active involvement in relationships as well as other aspects of the environment. Commitment is active, not passive. The person who is described as committed takes the lead and does not hesitate to confront issues when necessary.

The control disposition is "a tendency to feel and act as if one is influential (rather than helpless) in the face of the varied contingencies of life" (Kobasa et al., 1982, p. 169). The person who feels that he has control over his life perceives his influence as important. Control implies the use of intelligence, imagination, skill, and choice. The person who feels in control of a situation does not sit back passively, content to take whatever comes along in life. He intentionally takes charge of his life and actively assumes responsibility for his own destiny. This is important as it relates to coping, since stressful events will more likely be seen as within the person's control. Control prevents the person from seeing the world in the role of victim; in fact, this part of the hardiness personality helps the person cope, even with life-threatening events.

The challenge disposition is "the belief that change rather than stability is normal in life and that the anticipation of changes are interesting incentives to growth rather than

threats to security” (Kobasa et al., 1982, pp. 169-170). This characteristic enables a person to see change as normal and something to be accepted. Since all change is stressful, the ability to see it as a normal part of living is very important. The person who possesses the challenge component of hardiness is not afraid of new things, either positive or negative. He is able to see the world as fresh and stimulating, rather than frightening and threatening. This affects coping in that this person is more likely to see opportunities for growth in new situations, perhaps even welcoming new challenges. The person with the challenge component of hardiness is often more open and flexible (Moss, 1973).

Kobasa hypothesized that these three factors (commitment, control, and challenge) would play leading roles in keeping people healthy even when they encounter, as inevitably happens, stressful life events. For this reason, she suggested that the hardiness trait would act as a stress-buffering agent.

Hardiness: Kobasa’s original study

In her original study in 1979 Kobasa found support for her hypothesis. She began her study with nearly seven hundred middle-and-upper-level management personnel in a large utility company, who were mailed a letter and questionnaire asking for their participation. Eighty-six percent of these who received the letter and questionnaire responded, and four hundred were chosen at random to participate in the study. Measures of the three components of the hardy personality, along with various demographic characteristics, were mailed to these four hundred, and eighty-one percent of the subjects completed the material and returned it. In this sense the study was retrospective. Results showed that high-stress/high-illness and high-stress/low-illness executives could be differentiated by their scores on the hardiness factor. When she analyzed the data, Kobasa found that healthy subjects appeared to be more committed, more in control, and more accepting of challenges than did unhealthy subjects.

The measure of stress used in the study was the Schedule of Life Events (Holmes & Rahe, 1967), with certain modifications. Symptomatology was measured with the Seriousness of Illness Survey (Wyler et al., 1968). Each of the personality dispositions was measured using two scales. Commitment: Alienation From Self and Alienation From Work scales of the Alienation Test (Maddi, Kobasa, & Hoover, 1979). Control: External Locus of Control Scale (Rotter, Seeman, & Liverant, 1962) and the Powerlessness Scale of the Alienation Test (Maddi et al., 1979). Challenge: Security Scale of the California Life Goals Evaluation Schedule (Hahn, 1966) and the Cognitive Structure Scale of the Personality Research Form (Jackson, 1974).

Results of this study supported Kobasa's hypothesis: Hardiness provided a buffering effect on the development of illness in individuals under high stress. Her initial study was retrospective, but she subsequently worked with a prospective design to demonstrate that hardiness also would predict future health (Kobasa, Maddi & Courington, 1981; Kobasa, Maddi & Kahn, 1982).

Review of the literature in support of the hardiness theory

Since Kobasa's work in the late 1970's and early 1980's, subsequent research has been done. Some of it has been retrospective, some prospective. Much of it has been supportive of Kobasa's initial findings. Rhodewalt and Agustsdottir (1984) found that hardy persons were more likely to see events as desirable and under their control than subjects low in hardiness, which supports the theoretical basis of Kobasa's concept. Later Rhodewalt and Zone (1989) found hardiness to mediate the effects of depression and illness. Allred and Smith (1989) reported that hardiness also related to cognitive style as well as physiological arousal. Hardy individuals reported feeling more positive about themselves than those with low hardiness. Physiologically, hardy subjects displayed higher levels of systolic blood pressure, which the experimenters took to mean more coping efforts (Allred & Smith, 1989).

Nowack (1986) studied hardiness as it relates to psychological distress and daily hassles. His studies supported the stress-buffering effects of hardiness. Wiebe and McCallum (1986) also found a significant correlation between hardiness and illness, but they were unable to determine the stress-buffering effect of hardiness. The important aspect of Wiebe and McCallum's 1986 study was that hardy subjects appeared able to maintain more positive health promoting behaviors when they were under high life stress than did those subjects low in hardiness. Results therefore demonstrated that hardiness had a direct effect on illness as well as an indirect effect through health practices. Manning and Fusilier (1999) also found that hardiness appeared to be related to fewer health care problems. This may mean that stress affects the development of illness by the changing of health practices, in addition to the direct stress effect hypothesized by Kobasa. Wiebe and McCallum's study supported earlier work by Pardine (1983), reporting that subjects that become sick after experiencing a stressor may do so in part because they do not maintain good health behaviors. When under stress it is interesting to note that results from this study suggest that the indirect effect of hardiness may be due largely to its impact on health practices, rather than on the handling of the stress itself.

A number of other studies generally support Kobasa's hypothesis. While Hannah (1988) found hardiness to have an interactive effect on illness in combination with health concerns, his study also found the hardiness factor to have no direct effect on the health behavior of ninety-six undergraduates. Stress-buffering effects were supported in the research of Howard, Cunningham, and Rechnittzer (1986). Their longitudinal research looked at the relationship of hardiness, job stress, and the risk of heart problems in Type A subjects.

Noting that Kobasa's original research was done with white male, middleclass executives, Schmied and Lawler (1986) were curious about how the hardiness concept might relate to women. They were aware that the several studies utilizing women had focused on psychiatric symptoms, rather than on physical illness. One previous study

consisted of women being screened for cervical cancer (Gentry & Kobasa, 1984); both Ganellan and Blaney (1984) and Rhodewalt and Agustsdottir (1984) used undergraduate students for their research. Since none of these were completely representative of the female population in general, Schmied and Lawler (1986) decided to take a sample more representative of women in the population. Their sample consisted of eighty-two predominantly white female clerical workers with an average of 2 years of college. They found that hardiness may indeed serve as a factor in the resistance of mental illness, but they could find no evidence that hardiness acts in the same way with physical illness in women. One interesting finding was that the more hardy secretaries seemed to be older and more educated, as well as more likely to be married. This was significant, since Kobasa had consistently found no relation between demographic variables and hardiness in her samples of males.

Limitations of Kobasa's research

There are a number of shortcomings evident in Kobasa's research on hardiness. The dependent variable in all of her studies is self-reported illness and not necessarily illness itself. It should be obvious that hardy individuals may not be as willing to admit to illness, even though they may be experiencing illness. Kobasa herself acknowledged this to be a problem, although she checked forty-eight subjects' self-reported illnesses against their medical records, finding high agreement. The fact still remains that persons high in control may not admit to illness symptoms or may even deny them. If symptoms are not reported to the doctor, then they obviously will not show up on medical records. Therefore, neither medical records nor self-reports necessarily are accurate indicators of health.

Probably the most frequently argued portion of the hardiness theory is concerned with grouping commitment, control, and challenge together under the one umbrella of hardiness. This, of course, is Kobasa's premise: These three dimensions are all indicators

of a single underlying personality dimension called hardiness. Hull, Van Treuren, and Virnelli (1987) refuted Kobasa's premise in a fairly convincing way in their paper "Hardiness and Health: A Critique and Alternative Approach". They reviewed five studies, two by Kobasa herself, one by Ganellen & Blaney (1984), one by Rich & Rich (1985), and another by Schlosser & Sheeley (1985). They concluded that the three components suggested by Kobasa should not empirically be grouped together as a single personality dimension. Challenge particularly appears to be unrelated to health outcomes. Even commitment and control, while useful in explaining behavior, may act independently in their causes and effects.

Funk and Houston (1987) studied what they considered to be shortcomings in previous hardiness research. They replicated the main effects for hardiness found in earlier studies, but when they analyzed the data by analysis of variance (ANOVA), they found that hardiness did not have any buffering effect on stress and stressful life events. They also did a factor analysis on the hardiness subscales; the factor analysis revealed only two factors, and these were not consistent with the hardiness concept. Hull, Van Treuren, and Virnelli (1987) arrived at some of the same conclusions. They suggested that the three components of hardiness should not be yoked together under one hardiness concept. Rather, each should be examined on its own merit. They noted that the variables of commitment and control appear to have independent effects on health-related outcomes. They also suggested that rather than seeing the positive side of hardiness as having a buffering effect on illness, it might be more accurate to say that lack of control and lack of commitment are empirically linked to increased illness simply because they are themselves stressful.

Another of the more consistently criticized areas of hardiness research concerns measurement of the variables involved. Some have pointed out that Kobasa uses negative indicators to compute her variables. Funk and Houston (1987) contend that the most frequently used Hardiness Scale does not directly measure the characteristics of

commitment, control, and challenge. For example, when Kobasa reports that a person is high in commitment, what she is really reporting is that the person has scored low in alienation. The Hardiness Scale uses two scales to measure commitment: the Alienation From Self Scale and the Alienation From Work Scale (Maddi, Kobasa, & Hoover, 1979). This implies that commitment is the converse of alienation. Likewise, a high sense of control is assumed to equate with a low score on the Powerlessness Scale of the Alienation Test (Maddi et al., 1979) and the External Locus of Control Scale (Rotter, Seeman, & Liverant, 1962). A person is judged to be high on the challenge variable if he/she scores low on the Security Scale of the California Life Goals Evaluation Schedule. These assumptions may need to be questioned.

Another problem in the area of measurement and the replication of hardiness research results from the varying number of subscales that have been used to measure hardiness in the past. Generally, as mentioned above, the Hardiness Scale now uses five subscales; in the earlier studies Kobasa used as many as 19 subscales. In addition, there has been some shifting in the way certain scales have been used from study to study. For example, Kobasa used the Powerlessness scale to indicate commitment in one study (Kobasa, 1982a) but later in the same year used it to indicate control (Kobasa, 1982b). All in all, there appears to be some confusion in the use of the subscales, and this has made replication difficult.

There appear to be a few problems with statistics, as well. Most of the earlier studies used analysis of variance designs in which hardiness and stressful life events were the independent variables, as well as other concepts such as social support. These studies have shown that hardiness is significantly correlated with stressful life events and social support; therefore, it does not make good statistical sense to use ANOVA. ANOVA is used when the factors are independent (Glass & Hopkins, 1984). Therefore, it would probably be more appropriate to use multiple regression, since this method is able to determine the effect of each factor while controlling for the influence of the other factors

(Funk & Houston, 1987). Multiple regression also allows for the use of continuous independent variables.

Review of literature unsupportive of hardiness theory

Although hardiness has been proposed as a buffer against illness, a number of studies have not found this to be true. Schmied and Lawler (1986) found a strong association between illness and stress, but they did not find any hardiness main effects or interactions between stress, Type A behavior, and hardiness. Hannah (1988) studied ninety-six undergraduates and found that hardiness had no direct effect on health behavior, which may be important in predicting illness.

Other studies have failed to demonstrate results supportive of the hardiness concept. Ganellen and Blaney (1984), who studied female undergraduates in relation to hardiness, life stress, social support, and depression, found only the Alienation from Self Scale could accurately reflect moderating effects of life stress. Similarly, Funk and Houston (1987) studied male undergraduates and found no buffering effects of hardiness on depression. They did a subscale analysis and found that there was a significant main effect only for the Alienation from Work Scale in relation to subsequent depression.

Manning, Williams, and Wolfe (1988) studied nearly five hundred workers, male and female, and they also found no moderating effect of hardiness. (Hardiness did have a direct effect on job satisfaction, work tensions, quality of life, emotional state and the number of somatic complaints.) Roth, Wiebe, Fillinglen, and Shay (1989) studied the effect of exercise, self-perceived fitness level, and hardiness as they correlate with in stress resistance among college students. They found that neither fitness level nor hardiness produced a stress-moderating effect on health.

More recent research has been done on the effects of hardiness on marital adjustment. Macewen and Barling (1988) studied the relationship of conflict, family support, personality hardiness, and marital adjustment in fifty-one employed women.

They found that hardiness did not produce a buffering effect on marital adjustment. In fact, they went on to question the applicability of the concept of hardiness to women overall. Maddi and Kobasa (1984) speculated that hardiness develops as a result of the family environment, saying that in the hardiness-producing family there are frequent changes in environment. Parents in these families encourage their children to accept these changes as richness and challenge. Maddi and Kobasa (1984) suggest that these parents are warm toward their children and encourage individuality. Unfortunately much of this is speculation and has not been empirically tested. Noting the limited amount of research in this area, Bigbee (1992) decided to explore self-moderating factors such as hardiness from a family perspective, examining the effects of stressful life events and hardiness, and their effects on illness occurrence among families. His findings were mixed. Results suggested that hardiness may serve as a stress-moderating factor within families. However, the analysis of variance and subgroup analysis findings failed to support the main or interactive effects of hardiness. He deduced that hardiness might serve as a stress-buffering factor, but only when the stressor is particularly aversive.

In their study "Health Practices and Hardiness as Mediators in the Stress-Illness Relationship" Wiebe and McCallum (1986) found that hardiness was indeed related to health status. However, they found that hardiness did not appear to have a direct effect on stress, but rather on health and exercise behaviors. Similarly Contrada (1989), in studying the relationship between hardiness and the physiological responses to stress, found evidence that hardy individuals tend to engage in health-promoting practices, such as eating a proper diet and taking care with personal hygiene. However, only the challenge component of hardiness contributed significantly to the prediction of diastolic blood pressure change scores. Neither control nor commitment showed any significant relationship with diastolic blood pressure change. In addition, when Contrada added all five scales together to get a composite hardiness index, this did not show any more significant relationship than taking the challenge component alone. This finding is directly

in opposition to most other research on hardiness, which tends to favor commitment and control as the major factors in hardiness. Contrada notes that one reason for this discrepancy may be due to the relatively poor internal consistency of the measurement scales that were used to determine the challenge component of hardiness. Contrada's research is somewhat unique in that he uses physiological measures of stress and not simply paper-and-pencil self-reports. There have been a small number of similar studies reported in the literature, one of which was done by Van Treuren and Hull (1987). They found that high hardy subjects had higher levels of both heart rate and systolic blood pressure relative to low hardy subjects.

Allred and Smith (1989), also curious about physiological effects, examined the effect of a potential stressor on heart rate and systolic blood pressure and finger pulse volume in high and low hardiness groups. They wanted to determine if hardiness correlated with physiological changes. Results showed that there was only marginal evidence of lower physiological arousal (i.e. finger pulse volume). Also, high hardy subjects had larger systolic blood pressure responses to stressful tasks than low hardy subjects. These results raise questions about the link between hardiness and health. Previous studies have determined that elevated blood pressure and the faster heart rate that occurs during high stress times tend to increase the risk of illness. If high hardy individuals display a physiological response (i.e. increased reactivity), then it would seem that they would be at increased risk for illness. And yet, the whole concept of hardiness states that high hardy individuals would somehow be buffered against illness.

Conclusions

While there was general excitement and enthusiasm initially for Kobasa's concept of hardiness, much research has been done to cast a shadow on her work. In truth, there are numerous limitations to hardiness research. Certainly the use of negative indicators to measure the constructs create considerable empirical problems. If the only way to

measure challenge is to index a low need for security, or if the only way to measure control is to index a low sense of powerlessness, then it would almost seem that hardiness is not really being measured at all. Individuals that score high on the five hardiness subscales would seem to be maladjusted (alienated from self and work), powerless (having little sense of control over their lives), and in need of security. Something seems inherently wrong with measuring the opposite of what is desired and then assuming that the converse is true as well.

On the surface the concept of hardiness is appealing and makes sense. Most of us would like to believe that a sense of commitment is important, that health is imminently better if we are committed to goals and values. In the same manner most of us would like to believe that maintaining a sense of control over our lives can make a tremendous difference in our living. Those times when life seems out of our control only serve to convince us that being in control is inherently to be preferred. And most of us can see the obvious benefit to accepting changes in our lives as challenges to be taken on, dealt with, and surmounted. Many of us have been conditioned since childhood to believe that the most growth occurs during times of challenge. Therefore, early researchers of hardiness wanted very much to prove Kobasa's theory. Her enthusiasm for the benefits of hardiness was contagious.

Since her original study was retrospective, Kobasa continued to explore the concept of hardiness but changed to prospective studies. Two studies (Kobasa, Maddi & Courington, 1981; Kobasa, Maddi & Kahn, 1982) confirmed that hardiness was indeed a viable concept and could even predict future health. Rhodewalt and Zone (1989) found that hardiness was a mediator of the effects of depression. Research by Rhodewalt and Agustsdottir (1984) also supported Kobasa's premise. Allred and Smith (1989) discovered that hardy subjects consistently displayed higher levels of systolic blood pressure, indicating (in their minds) healthier efforts toward coping.

A number of researchers explored the relationship between hardiness and health behaviors, contending that the hardy individual was more likely to engage in healthy behaviors, thus contributing to less illness (Wiebe and McCallum, 1986; Pardine, 1983; Hannah, 1988). Much of this research supported the overall concept of hardiness as a positive indicator of health behavior and decreased illness.

Others suggested limitations in the research, notably the grouping of control, commitment, and challenge under one umbrella (Hull et al., 1987). Some noted measurement and statistical errors (Funk & Houston, 1987). Funk and Houston (1987) found no buffering effects of hardiness on depression in male undergraduates, while Ganellen and Blaney (1984) found similar results in their research on female undergraduates.

Research has extended beyond the effects of hardiness on the individual. Researchers are beginning to study the effects of hardiness on family systems, specifically marital conflict (marital illness behavior). Preliminary work in this area suggests that, despite Kobasa's speculation that hardiness develops as a result of hardy families, hardiness does not produce a buffering effect on marital conflict within the family setting (Macewen & Barling, 1988). And although Bigbee (1992) found that hardiness may serve as a moderating factor within families, he also failed to support the main effects of hardiness.

Physiological studies of hardiness have demonstrated mixed results, with some studies showing that hardy individuals exhibit increased systolic blood pressure in times of stress (Van Treuren & Hull, 1987) and other studies showing only a marginal increase in physiological measures during stressful tasks (Allred & Smith, 1989). These latest studies call into question the whole concept of hardiness, since increased heart rate, blood pressure, etc., would tend to lead to illness, not decrease the risk of illness.

It seems obvious that the concept of hardiness, as Kobasa first introduced it, is in serious jeopardy. It is probably better not to calculate a composite score for hardiness.

Rather, each subcomponent is better measured separately. The control component of hardiness appears to be an important moderating factor of health outcomes but would probably be more effectively measured by some other scale than what Kobasa originally proposed. Some researchers suggest the Locus of Control Scale (Rotter et al., 1962) as a better measure.

Researchers have done a good job of systematically examining the individual components of the hardiness concept. However, more empirical research needs to be done. Studies that take a closer look at physiological measures as they relate to hardiness and stress and illness behavior are still needed. Another interesting area for hardiness research relates to the family system and health behaviors. Finally, what are the implications of hardiness developmentally across the lifespan? This area has been largely overlooked and might prove a fertile ground for further study. Kobasa's original study, while refuted by many, still continues to provide avenues of further exploration and study.

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