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### The Moderating Role of Hardiness and Social Support in the Relation Between Job Stressors and Well-Being. A Lesson From a Clerical Women Sample

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# The Moderating Role of Hardiness and Social Support in the Relation Between Job Stressors and Well-Being. A Lesson From a Clerical Women Sample

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The study concerns the moderating role of two variables—hardiness and social support—in the relation between job stressors and well-being. It was checked if there is a connection between hardiness and social support, and if these variables are directly related to the level of well-being. It was also hypothesized that hardiness and social support buffer the negative influence of stressors on well-being. The fact that social support and well-being are multidimensional variables was taken into account.

The cross-sectional study was conducted on a group of 200 women employed as office workers. The results showed that hardiness correlates with the indexes of emotional support as well as practical support coming from supervisors. The connection, however, was not strong. Hardiness and social support were directly connected with the level of well-being. Interaction of these two independent variables played a marginal role. As far as the buffering role of these variables was concerned, the results have shown that hardiness did not play a buffering role and social support did to a limited degree only.

The results of the study proved that it is justifiable to treat social support and well-being as multidimensional variables.

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social support   hardiness   stress at work   well-being

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## 1. INTRODUCTION

For the last decade researchers dealing with stress at work have concentrated on searching and defining variables that modify the course of the stress transaction. The growth of the interest in this subject can result from the fact that we increasingly realize that it is not easy to eliminate stressors from our lives and work. It is, however, possible to diminish the harmful effect of stress on our well-being. Scientists, as a result, more often undertake analyses of the role of such variables as coping with stress (Carver & Scheier, 1994; Endler & Parker, 1990; Lazarus, 1990; Wrześniewski, 1996), different aspects of temperament (Klonowicz, 1992; Strelau, 1996), sense of coherence (Antonovsky, 1987), hardiness (Bartone, Ursano, Wright, & Ingraham, 1989; Kobasa & Puccetti, 1983), and so forth. All those variables are said to have a moderating role in the relation stress-well-being.

Those mediators are not isolated variables but have interactions with one another. As a result, in order to answer the question what variables and in what way mediate between stressors and well-being (between the cause and effect of stress), it is necessary to clarify what relations can take place between mediators and empirically check if the relations actually exist. In our study, the attention was drawn to two variables, which are often treated as moderating variables: hardiness and social support.

### 1.1. Social Support

Studies on social support have taken place for dozens of years. There are very few research areas, which have inspired such big interest and at the same time are characterized by such ambiguous results of research. These ambiguous results and lack of accumulation of knowledge in this field can, at least to a certain degree, be explained by the lack of a leading theory, which would describe what social support is and what functions it has. The unsatisfactory conceptualization of the concept of social support seems to be connected with the practical background of the variable (Jaworowska-Obłój & Skuza, 1986; Sęk, 1986). Undoubtedly, it was practitioners who showed theorists what potential functions this variable can have. Theorists enchanted by the possibility to penetrate a new research area conducted a huge number of studies verifying some intuitions of the practitioners not undertaking, however, more serious attempts to create a theoretical framework for this

variable. Not earlier than the 1980s were a few works published (e.g., House, 1981; Payne & Jones, 1987; Thoits, 1982), which clearly indicated that social support was not a homogenous idea and called the scientists to clearly specify what they understood by social support. It happened many times that under the name of social support completely different theoretical constructions were described.

Payne and Jones (1987) undertook an attempt to determine what dimensions could be distinguished in the social support variable. These are

- direction—if the individual gives social support and (or) if he or she receives it;
- type (content)—what character social support has. Is it, for example, emotional, appraisal, information, or instrumental support;
- source—who gives social support. Is it, for example, family, friends, co-workers, or supervisors;
- disposition—if support is available when it is needed, if there is actual utilization of support;
- description/evaluation—if the quality and quantity of social support is described or estimated.

Other scientists distinguished also other indicators of social support, for example, satisfaction from social support (I.G. Sarason, Sarason, Shearin, & Pierce, 1987), seeking social support (Lazarus, 1990), adequacy, that is, conformity between demand for a particular type of social support and the support supplied (Theorell, Orth-Gomér, & Eneroth, 1990).

Another reason for little accumulation of knowledge concerning social support is the fact that studies are conducted in various paradigms concerning the way of measuring social support. Comparisons of the results from studies conducted in different paradigms can only be limited. B.R. Sarason, Sarason, and Pierce (1990) indicated three main trends connected with measuring social support:

- *Measures of networks of social support* concentrate on the measurement of the integration of the individual with the group and on the processes of mutual connections within the group. Hence, the structure of the network of support is measured as well as its size, frequency of contacts, time of their duration, and so forth;
- *Measures of received social support* concentrate on the measurement of support, which the individual actually received, or said he or she had received;

- *Measures of perceived social support* concentrate on the individual's belief concerning the availability of the support, possibility to use somebody's help.

B.R. Sarason et al. (1990) suggested that in studies taking as a starting point the concept of stress by Lazarus and Folkman (1984)—and this is what has happened in the present study—measures of perceived social support should be used. There is certain adequacy between how stress is understood and how social support is understood. In both these concepts an important role is played by a *subjective appraisal*. Perceived social support is taken into account in a cognitive assessment done by individuals at the moment when they are confronted with particular demands. If they notice that they can count on particular support from other people, they can come to a conclusion that the demands are not beyond their resources.

Another advantage of taking into account measures of perceived social support is that these measures allow to solve (at least to a certain degree) a methodological problem connected with support measures. Received social support (similarly to the network of social support) can be considered as a kind of continuum. One end of this continuum describes a situation when the individual does not receive any help and is isolated. The other end constitutes a situation when the individual is given too much "help," which leads to a lack of independence, dependency, and a feeling of over-control. Hence, when we deal with a high score on the scale of *received social support* (or with high indexes of *social network*) this does not have to mean that the individual perceives a high level of social support.

Measures of perceived social support do not constitute a homogenous group of methods. B.R. Sarason et al. (1990) showed that while deciding to measure perceived social support one should in due course answer four questions.

1. *Will we measure the availability of social support or satisfaction from support?* Indexes of availability and satisfaction are not strongly correlated with each other and they seem to be quite independent (I.G. Sarason et al., 1987). The availability of support seems to be more connected with social skills, and satisfaction from support—with personal features (e.g., degree of neuroticism; I.G. Sarason, Levine, Basham, & Sarason, 1983).
2. *Will we measure social support available every day or the belief concerning a potential availability of the support (e.g., in emergency situations)?* The data that we have do not allow to determine which of

the approaches is better. On the one hand, the measures of perceived support are characterized by quite a good stability in time (I.G. Sarason et al., 1987), which indirectly could mean that life events rather do not influence the level of perceived support. On the other hand, there are data indicating something different, namely, that life events influence the lowering of the perceived availability of social support (Lin & Ensel, 1984).

3. *Will we measure the global index of support or will we take into account the differentiation according to a situation (e.g., support concerning work, illness, etc.) and sources of support (e.g., support from supervisors, siblings, etc.)?* Correlations between the scales measuring global and differentiated indexes are not strong (I.G. Sarason et al., 1987). The data on what kind of sources of support play a positive role in preventing adverse effects of stress on health are contradictory (Cieślak, 1998). Boyacioglu and Karanci (1992) as well as I.G. Sarason et al. (1987) talked about a positive role of support coming from family. In a study by LaRocco, House, and French (1980) and Burke and Greenglass (1989) support from co-workers turned out to be more important than that from family or supervisors. On the other hand, the study by Kirmeyer and Dougherty (1988) as well as Russell, Altmaier, and Van Velzen (1987) indicated the significance of support coming from supervisors. Outside the work environment an important source from which one can take support can be (apart from family) friends outside work. Literature does not show much about the role of support coming from this source in reducing negative health effects caused by stress. In general, there are no unequivocal theoretical premises that would allow to make hypotheses on a special role of one of the sources of support.
4. *Will we measure the general index, will differentiation according to kinds of support be considered (e.g., emotional, assessing, information, and instrumental support)?* Although one of the earlier definitions of social support (House, 1981) introduced a differentiation of four kinds of support—emotional, appraisal, instrumental, and information—the proposition did not find a broad application in the conducted studies. However, the counter-propositions that appeared, for example, I.G. Sarason et al. (1983, 1987) totally gave up on differentiating specific kinds of support. Others, later including House himself (House & Kahn, 1985, as cited in B.R. Sarason et al., 1990), suggested limiting the number of support types to two: emotional and practical support (e.g., Power, 1988). Cutrona and Russell (1990) in their review tried to introduce some order in the

described matter. They made a re-analysis of various theoretical concepts of social support in view of differentiated types of support. The data provided by them indicated the existence of five types of support, but the fifth type—network support—applies rather to the extent and intensity of social contacts (it is a socio-demographic index) than social support. The remaining four types of support described by Cutrona and Russell (1990) correspond with the types of support originally differentiated by House. The types differ in name but are identical in contents. In this way, the first concept defined by House (1981) was re-introduced.

## 1.2. Hardiness

According to Kobasa (1979) hardiness is a personality variable, which protects from deleterious effects of high levels of stress. The existence of so described hardiness was confirmed by studies of mid- and high-level managers (Kobasa, Maddi, & Kahn, 1982; Kobasa & Puccetti, 1983). Kobasa and Puccetti suppose that hardiness is a personality variable, which can be understood as “generalized ability to use all available personal and environmental resources (as a result also social support; the authors’ annotation) to most effectively perceive, interpret, and cope with stressful events” (Kobasa & Pucetti, 1983, p. 843). Social support is treated only as one of many resources, which a person with a high level of hardiness can use.

Although Kobasa (1979) claims that hardiness should be treated as a homogenous variable, she indicates three compound elements of the concept of hardiness:

- control—close to the understanding of the inner locus of control;
- commitment—feeling of sense and purpose of one’s actions;
- challenge—treating difficult situations as a challenge, not threat.

Hardy persons have a feeling that they can achieve what they strive for (inner locus of control) and that the purpose of their actions is right and worth full commitment. All problems encountered on the way to the realization of the mentioned aim are perceived as a challenge and they positively influence the individuals (challenge).

Among the scientists dealing with the subject of hardiness, there is a discussion concerning the way of interpreting this variable. In a special way the discussion concerns questionnaires for measuring hardiness. Some



scientists, who can be called *reductionists*, believe that one should use not only the total result, but also (or first of all) take into account the results of particular sub-scales of the questionnaire (control, commitment, challenge). Blaney and Ganellen (1990) are, among others, advocates of this concept. Another group of scientists can be described as *holists*. Bartone et al. (1989) and the author of the hardiness concept herself (i.e., Kobasa) could be included in this group. This group believes that hardiness, though it comprises three components, should be interpreted as one index. In this way it is possible to avoid the risk of "obscuring what is apparently a complex, nonreducible phenomenon" (Bartone et al., 1989, p. 320).

### 1.3. Hardiness and Social Support

Dependence between social support and hardiness is not clearly determined. Blaney and Ganellen (1990) indicated that theoretically there can be two non-contradictory cause relations:

- persons perceiving a high level of social support show behaviors typical for hardy persons (social support promotes hardiness);
- hardy individuals show behaviors that lead to getting or perceiving a high level of social support (hardiness promotes social support).

In the study of King, King, Fairbank, Keane, and Adams (1998), the authors confirmed the hypothesis that hardiness would have an indirect effect on posttraumatic stress disorder through social support. The authors supposed that persons high in hardiness may be better able to build for themselves a larger and more complex network than persons low in hardiness.

However, social support, as it was mentioned before, is not a homogeneous variable. A more basic question than the one concerning the causes should be analyzed: Is there a relation between particular indexes of social support and hardiness? The data so far available on this subject has not been complete. In different studies only some of the sources or kinds of support have been analyzed. In the population of Vietnam veterans the correlation between emotional and instrumental perceived social support from families and friends, and hardiness was significant and the correlation coefficient was almost the same for both men (.39) and women (.38; Taft, Stern, King, & King, 1999).

#### 1.4. Hardiness, Social Support, and Well-Being

House (1981), in his classic concept of social support, showed that one of the functions of social support is that it increases the level of well-being. A similar function, as it seems, can also be played by hardiness.

A detailed review of studies on the mediating role of hardiness and social support in the relation between stress and psychological functioning was presented by Blaney and Ganellen (1990). The obtained results showed that the relation between social support and the measures of psychological well-being is stronger than the relation between hardiness and well-being. In another study, King et al. (1998) analyzed a sample of 1632 Vietnam veterans. The authors indicated that there was a significant but not strong relationship between hardiness and social support, and that these factors are conducive to recovery after trauma (higher levels of social support and hardiness were related to lower levels of posttraumatic stress disorder).

The relation of hardiness and indexes of the somatic aspect of well-being is not clear. Analyzing a sample of students, Smith and Meyers (1997) have found that hardiness is positively correlated to a number of major illnesses; when the number of colds was analyzed, the relation was nonsignificant, but the reverse was true: the higher the hardiness, the lower the number of colds. In a cross-sectional study, Schmied and Lawler (1986) showed that in a sample of secretaries hardiness might be unrelated to the frequency of illnesses. In a longitudinal study conducted in a sample of managers, Kobasa, Maddi, and Courington (1981) proved that hardiness decreases the number of subsequent illnesses (in both studies mentioned earlier, the authors used the same instrument to assess the number and frequency of illnesses). While studying a sample of bus drivers, Bartone (1989) found that healthier participants were significantly higher in hardiness and tended to report more social support at work but less social support at home. So, it should be mentioned again that social support is not a homogenous variable. What types and sources of social support will, then, have a positive relation to well-being indexes?

A further question concerns an interactive influence of hardiness and particular indexes of social support on well-being. Is this interaction important? And if so, while analyzing well-being, is a situation when high hardiness is accompanied by a high level of a given index of social support, the most favorable?

### 1.5. Buffering Role of Hardiness and Social Support

In the literature, much space has been devoted to a discussion on the buffering role of social support and hardiness. Both variables can diminish the negative influence of stressors on well-being. This means that among people who experience a high level of stressors, persons who have a high level of hardiness and social support should have a higher level of well-being indexes than persons with low levels of hardiness and social support. So, the level of stressors or stress exposure should be considered.

Empirical data concerning the buffering role of social support, of hardiness, and of the interaction of social support and hardiness are not univocal. Bartone et al. (1993) conducted a study on a sample of army soldiers who participated in the Gulf War. The authors analyzed if hardiness could predict the level of psychological adjustment to combat stress. The results showed that the exposure to combat stress interacts with hardiness, with the influence of hardiness being greater under high-exposure conditions. In another study, King et al. (1998), contrary to their expectations, did not find empirical support for the hypothesis that hardiness and stress exposure to combat interact significantly, when posttraumatic stress symptoms are analyzed. Bartone and Fullerton (1992) found that correlation coefficients between hardiness and positive and negative affect are substantially higher in the group of administrative U.S. Army workers who had contacts with casualties during the Persian Gulf War compared to workers who did not experience this form of stress exposure. It also turned out that in the group with high stress exposure, the level of perceived social support from co-workers was significantly higher. But despite the fact that different sources of social support were analyzed, only support from families and friends correlated with mental health indicators more strongly in the exposed group versus the non-exposed one.

In a famous study of Kobasa and Puccetti (1983) concerning managers of middle and higher rank, it turned out that among participants experiencing a high level of stress

- the best results of well-being are achieved by persons who are characterized by a high level of hardiness and a high level of social support coming from supervisors,
- participants who had a high level of hardiness but low social support coming from family had considerably higher health indexes than managers with low hardiness but high support from their families.

It seems necessary to include the level of stressors while preparing a study in which the possible interactions between social support and hardiness are analyzed.

### **1.6. Relationship Between Social Support, Hardiness, and Well-Being: The Effects of Gender**

Although a lot of research in this area has been done, some authors do not consider the role of gender in obtained results. For example, the effects of hardiness on health should not be generalized, if study samples consist of males entirely (cf. Bartone et al., 1989; Kobasa, 1979; Kobasa et al., 1981; Kobasa et al., 1982) or predominately of males (Bartone, 1989; King et al., 1998; Taft et al., 1999). There are few studies on the role of hardiness in women samples.

Other studies showed existing gender differences in work-related burnout and social support. Burke and Greenglass (1989) proved that although men and women do not differ in perceived levels of conflicts, ambiguity, and participation in decision making at work, they do differ significantly in some aspects of burnout (emotional exhaustion and depersonalization, rated higher in males) and general levels of social support from different sources (higher in women).

In some studies, it was also pointed out that when the role of psychosocial work characteristics and social support and their effects on health are considered, women's health seems to be related to other aspects than men's. In the Whitehall study, the prospective cohort study of over 10,000 male and female British civil servants, the authors found that psychological demands at work in women and low emotional support in men predicted poor physical functioning (Stansfeld, Bosma, Hemingway, & Marmot, 1998). While analyzing psychological functioning it was found that low emotional support in men and high negative aspects of close relationships in men and women were associated with greater risk of psychiatric morbidity (Stansfeld, Fuhrer, & Shipley, 1998).

Considering the possible effects of gender, it seems justified to analyze the effects of social support and hardiness for both groups separately. Because studies on working women are rarer, this group deserves more attention from researchers.

### 1.7. Function of Hardiness and Social Support Versus a Choice of Well-Being Indexes

Studying the direct influence of social support and hardiness on well-being (section 1.4.) and the buffering role of those variables (consisting in reducing the negative influence of stressors on well-being, section 1.5.), it should be underlined that the dependent variable itself (well-being) is not a homogenous variable. For example, a popular definition of well-being formulated by the World Health Organization (WHO) indicates physical, social, and mental aspects. Hence, it can be expected that dependencies between the two independent variables—social support and hardiness—and the dependent variable (well-being) will look different depending on well-being indexes.

The results of the study conducted by Bartone et al. (1989) illustrate this fact well. The study was longitudinal and 164 army employees helping families of the victims of a military plane crash<sup>1</sup> participated. In the study, there was no relation between stress and positive affect. It turned out that social support and hardiness influenced the level of *positive affect*. Persons with a high level of hardiness or social support had a higher level of positive affect than participants with a low level of hardiness or support. The difference was especially visible at a high level of stress. The level of *negative affect* was highly influenced by the level of hardiness and interaction between social support and hardiness. The low level of hardiness (main effect) and hardiness and social support (interaction) was connected with a high level of negative affect. However, the lowest level of negative affect was characteristic for persons with a high level of hardiness but a low level of social support. The *somatic aspect of well-being* was influenced by social support (main effect) and interactions stress  $\times$  support  $\times$  hardiness and social support  $\times$  hardiness. It was noticed that, in participants with a low level of stress, the highest level of somatic complaints is characteristic for persons with a high level of support but a low level of hardiness.

While studying the possible relationships between hardiness, social support, and well-being a lot of aspects of these variables should be taken into account. Because the relation between these variables is not very clear, it is necessary to analyze different types and sources of social support in one study, and possible interaction effects of support and hardiness on

<sup>1</sup> The crash happened on December 12, 1985, in Gander, NF, Canada. The plane was carrying 248 soldiers returning from a peace mission on the Sinai Desert. Everybody died.

different aspects of well-being should be considered. A set of research questions concerning social support and hardiness as mediating variables in the relation between stressors and well-being is presented.

1. Is there a relation between indexes of social support and of hardiness?
- 2a. Do indexes of social support have a positive relation with well-being?
- 2b. Is there a positive relation of hardiness with well-being?
- 2c. Does interaction of indexes of social support with hardiness differentiate the level of well-being?
- 3a. Do indexes of social support buffer the negative influence of stressors on well-being?
- 3b. Does hardiness buffer the negative influence of stressors on well-being?
- 3c. Does interaction of indexes of social support and hardiness buffer a negative influence of stressors on well-being?

## 2. METHODS

### 2.1. Participants

Two hundred women employed as clerks participated in the study. The average age was 42. They worked in Warsaw, Poland, in companies of different profile, sizes, and forms of ownership. Married women constituted the highest percentage of the participants (79%). Seventy-eight percent of participants had children. Sixty-nine percent of participants had secondary education, the rest (31%)—tertiary. The average number of years they had worked at the current workplace was 7.5.

### 2.2. Measures

#### 2.2.1. *Independent variables*

**Stressors.** For measuring the level of stressors, Widerszal-Bazyl's "Demands at work" questionnaire was used (Widerszal-Bazyl, Cieślak, & Najmiec, 1995). In the following analyses it was assumed that the level of stressors can be determined from the measurement of the demands level (Strelau, 1996). Although the applied questionnaire measures both the perceived intensity of demands and the burden they cause, for these analyses only the scale measuring the intensity level was used. This instrument estimates the

level of demands regarding the amount of work, demands resulting from the role conflict, interpersonal conflicts, and—related to work—home conflicts. Cronbach's alfa index of reliability for the whole scale is .85.

**Social support.** In this study, the Social Support Scale was used (Cieślak, 1995). It measures perceived social support and takes into account two dimensions of support: type and source. Four sources of social support were distinguished: supervisors, co-workers, family, and friends outside work. The conducted factor analysis suggested distinguishing two types of support: emotional and practical. There were, as a result, eight indexes of social support. Reliability indexes (Cronbach's alpha) in the study show as follows: emotional support from supervisors .93, emotional support from co-workers .91, emotional support from family .93, emotional support from friends from outside work .92, practical support from supervisors .94, practical support from co-workers .93, practical support from family .92, practical support from friends .91.

**Hardiness.** For measuring hardiness, a 45-item questionnaire developed by Bartone et al. (1989) was used. It consists of three sub-scales, which correspond with three component elements of the hardiness concept (cf. Kobasa, 1979; Kobasa & Puccetti; 1983): control, challenge, commitment. However, only the general index is used. In the study by Bartone et al. (1989), reliability (Cronbach's alpha) was .85; (.81 in our study).

### 2.2.2. *Dependent variables*

**Intensity and frequency of somatic symptoms.** Widerszal-Bazyl's method was used (Widerszal-Bazyl et al., 1995). It consists of 30 items describing frequently encountered somatic complaints. The participants are asked to determine the frequency of those complaints and their intensity. In the original method, participants were also asked to state how long the complaints had been taking place. The intensity and frequency are estimated on a 6-point scale. In this study, Cronbach's alfa index of reliability for intensity assessment accounted for .87, and for frequency .84.

**Satisfaction with life.** A method developed by Czapiński was used (1995). Originally, it consisted of 16 items concerning a broad spectrum of life (family, society). The answer is given on a 6-point scale: from *very unsatisfied* to *very satisfied*. In this study we obtained the index of Cronbach's alfa equal to .82 for this scale.

**Work satisfaction.** Clark's scale (Clark, 1976) was used (Polish version by Studenski & Barczyk, 1989; Widerszal-Bazyl et al., 1995). It consists of

12 items concerning satisfaction with different aspects of work. The answers are given on a 6-point scale: from *very unsatisfied* to *very satisfied*. In our study the reliability index (Cronbach's alpha) was .85.

**Affect balance.** Bradburn's questionnaire (Bradburn, 1969) was used (Polish version by Czapiński, 1995). According to his concept, psychological well-being is not a one-dimension construction, but it consists of two independent dimensions: the negative affect and positive affect. The Polish version of the questionnaire was translated by Lewicka and Czapiński (Czapiński, 1995). It consists of 10 items: 5 for each scale. Apart from these two indexes, the affect balance can be calculated, that is, the difference between the positive and negative affect. The index of internal consistency (Cronbach's alpha) calculated in Czapiński's study (1995) was .62 for positive affect and .58 for negative affect. In our study the indexes were similar: .70 for positive affect, .56 for negative affect.

**Anxiety, curiosity, anger as a state and trait.** For the measurement of an emotional aspect of psychological well-being, Spielberger's State-Trait Personality Inventory questionnaire was used. Wrześniewski (1991) prepared a Polish adaptation of this questionnaire. The method consists of three independent scales: *anxiety*, *anger*, *curiosity*. All the three variables are measured both as an emotional *state* and as certain constant personality *traits*. For the measurement of each of the variables a set of 10 questions was prepared. There were 60 items in total. The reliability of the scales was checked with the calculation of the time stability index ( $N = 48$ ) and internal consistency coefficient (40 women, 50 men). In the case of the first index, for the variables measured as a state, the indexes were lower (from .25 to .47) than the ones measured for anxiety, anger, and curiosity as traits (.72, .56, .72, respectively). This is still in accordance with the concept providing for the time variability of variables measured as a present state. Cronbach's alpha coefficients (of internal consistency) ranged from .68 to .92. Theoretical and diagnostic validity of the questionnaire was also checked. The received psychometric indexes were satisfactory. In our study the value of alpha indexes for particular scales showed as follows: trait-curiosity—.81, state-curiosity—.77, trait-anger—.87, state-anger—.92, trait-anxiety—.69, state-anxiety—.88.

### 2.2.3. Method of statistical analysis

In order to answer Question 1 (section 1.7.) concerning the dependence between hardiness and social support, correlations were calculated (Pearson's  $r$ ) between particular social support indexes and hardiness. In order to answer



the following questions, an analysis of variance (ANOVA) was conducted. For every dependent variable (well-being indexes) a series of eight variance analyses was conducted. The independent variables were stressors (S), hardiness (H), social support (SS), and interactions  $S \times H$ ,  $S \times SS$ ,  $H \times SS$ ,  $S \times H \times SS$ . There were eight analyses because in each of them a different (one of the eight) index of social support was used<sup>2</sup>. Based on the median value, two levels of each independent variables were determined. If a given independent variable turned out to be an important source of variance of the dependent variable, the next step was to analyze mean values of the dependent variable at particular levels of independent variables. It was checked which mean values differ from each other in a significant way. Benferroni's test was used for this purpose (Brzeziński & Stachowski, 1981; Norušis, 1994). To obtain the answer to the question about the buffering function of social support and hardiness (as well as interactions between these variables) only a group of people who are characterized by a high level of stressors was analyzed. Additionally, the assumption of variance homogeneity was checked (Cochran's C test). The  $R^2$  index, which indicates what percentage of variability of the results concerning the dependent variable is explained by independent variables, was calculated. The calculations were done with the help of the SPSS package (Norušis, 1994).

**TABLE 1. Correlation of Indexes of Social Support with Hardiness (Pearson's  $r$ , Two-Tailed Significance Test)**

Indexes of Social Support	Hardiness
Emotional support from supervisors	.21**
Emotional support from co-workers	.21**
Emotional support from family	.16*
Emotional support from friends	.18*
Practical support from supervisors	.17*
Practical support from co-workers	.13
Practical support from family	.12
Practical support from friends	.13

Notes. \*— $p < .05$ ; \*\*— $p < .01$ .

<sup>2</sup> Because there are numerous indexes of social support, it was impossible to place all indexes of support in one variance analysis.

### 3. RESULTS

#### 3.1. Hardiness and Social Support

All four indexes of emotional support significantly correlated with hardiness (Table 1). The relation of hardiness and practical support from supervisors was also important. It is noteworthy that the highest correlation coefficients appeared in the relation of hardiness with indexes of emotional support coming from the work environment.

#### 3.2. Hardiness, Social Support, and Well-Being

**The relation between social support and well-being.** Table 2 shows that some indexes of social support turned out to be an important source of variance of well-being indexes; not all of them, nevertheless. There was no connection between the level of indexes of social support and the intensity of somatic symptoms, anxiety as a state, anger as a trait. However, it was found that

- affect balance was significantly related to the level of emotional support from supervisors;
- in the case of state-curiosity, emotional support from co-workers and family as well as practical support from friends were significant sources of variance;
- in the case of trait-curiosity, emotional support from friends was a significant source of variance;
- trait-anxiety was significantly related to emotional and practical support from family and practical support from friends;
- the frequency of somatic symptoms was related to the level of practical support from supervisors;
- all indexes of emotional support as well as practical support from supervisors and co-workers were significant sources of variance when work satisfaction was analyzed;
- the level of life satisfaction was related to the level of emotional and practical support from family.

In accordance with expectations, in all the aforementioned cases persons with a high level of social support had a higher level of well-being than

persons with a low level of social support<sup>3</sup>. In the case of one result, a reverse tendency from the expected was observed. A high level of practical support from co-workers was connected with a high level of anger as a state.

**Hardiness and well-being.** The relation of hardiness with well-being seems to be more clear (see Table 2). For all the mentioned well-being indexes (besides intensity and frequency of somatic symptoms), hardiness was an important source of variance. Individuals with a high level of hardiness were more satisfied with life and work than individuals with a low level of hardiness<sup>4</sup>. They had a higher level of positive emotions and were characterized by a high level of curiosity (state and trait) and a low level of anxiety (state and trait) and anger (state and trait).

**Interactions: social support and hardiness.** For the 88 analyses in which the influence of the interaction hardiness  $\times$  social support on well-being was considered, 15 analyses showed that the interaction was an important source of variance for well-being (see Table 2). Table 3 presents the effects of interactions between indexes of social support and hardiness for given indexes of well-being. It was determined as well which mean level of a given index of well-being was characteristic for the four groups of persons differing in the level of hardiness and a given index of social support. Significant differences among the mean values are presented.

Based on the data presented in Table 3, the following results were obtained: Individuals characterized by high levels of hardiness and of social support index (group 4) almost always had a high level of well-being. These persons had

- significantly better indexes of well-being than participants with a low level of hardiness and social support index (group 1), in the case of eight interactions described in Table 3 (No. 4, 5, 6, 7, 8, 11, 12, 13);
- a higher level of well-being (lower intensity and frequency of somatic complaints, higher state-curiosity, lower state-anger and trait-anger, lower trait-anxiety) than persons with a low level of hardiness but a high level of social support index (group 2), in the case of eight interactions (No. 1, 2, 3, 5, 9, 11, 14, 15 in Table 3);

<sup>3</sup> Data concerning mean values is not presented because of the limited length of this article. They are, however, available on request.

<sup>4</sup> In the case of analyses taking into account the indexes of practical and emotional support from supervisors and co-workers, the described result was significant at the level of  $p < .10$ .

TABLE 2. Analysis of Variance (ANOVA) for Well-Being Indexes (Dependent Variables) and Independent Variables: Stressors, Hardiness, Social Support Indexes

## A. Dependent Variable: Affect Balance

Independent Variables	Emotional Support				Practical Support			
	I	II	III	IV	I	II	III	IV
Stressors (S) <sup>a</sup>	2.48	3.42 <sup>+</sup>	3.64 <sup>+</sup>	2.92 <sup>+</sup>	3.46 <sup>+</sup>	2.95 <sup>+</sup>	3.22 <sup>+</sup>	2.41
Hardiness (H)	5.70**	7.14***	6.72***	5.85**	5.71**	5.55**	6.56**	5.53**
Social support (SS) <sup>1</sup>	5.64**	0.18	1.34	0.34	0.85	0.23	0.15	0.02
S × H	1.16	0.07	0.90	0.83	0.81	0.43	0.76	0.86
S × SS	0.52	0.09	0.62	0.08	0.27	3.10 <sup>+</sup>	0.01	1.04
H × SS	0.13	0.73	2.04	0.01	2.34	0.32	2.34	0.00
S × H × SS	4.89**	4.85**	0.51	0.63	0.60	4.06**	0.07	1.06
<i>p</i> for Cochran's <i>C</i> test	1	1	.53	.49	.72	.80	1	.90
<i>R</i> <sup>2</sup>	.13	.09	.09	.07	.09	.09	.81	.07

## B. Dependent Variable: State-Curiosity

Independent Variables	Emotional Support				Practical Support			
	I	II	III	IV	I	II	III	IV
Stressors (S)	1.12	1.72	0.74	1.41	1.71	1.56	0.88	1.50
Hardiness (H)	12.24***	12.64***	10.64***	9.63***	10.75***	10.08***	11.58***	8.14***
Social support (SS) <sup>1</sup>	2.06	4.80**	4.87**	2.70 <sup>+</sup>	2.45	0.99	1.97	7.63***
S × H	0.05	0.53	0.01	0.04	0.12	0.02	0.01	0.04
S × SS	0.30	1.94	0.62	0.24	1.37	3.15 <sup>+</sup>	0.50	0.10
H × SS	0.23	5.41**	0.30	9.59***	0.00	0.96	1.25	8.65***
S × H × SS	0.26	0.94	0.07	0.79	0.19	0.04	0.10	2.79 <sup>+</sup>
<i>p</i> for Cochran's <i>C</i> test	.37	1	.57	.14	.51	.53	.99	.14
<i>R</i> <sup>2</sup>	.10	.14	.10	.13	.10	.10	.09	.15

**TABLE 2.** (continued)  
**C. Dependent Variable: State-Anger**

Independent Variables	Emotional Support				Practical Support			
	I	II	III	IV	I	II	III	IV
Stressors (S)	0.04	0.32	0.03	0.06	0.00	0.03	0.00	0.01
Hardiness (H)	10.97****	10.40****	9.01****	9.13****	12.12****	9.25****	9.57****	9.88****
Social support (SS) <sup>1</sup>	0.04	2.87 <sup>+</sup>	0.19	1.11	2.02	3.99**	0.05	0.17
S × H	0.00	0.93	0.00	0.00	0.08	0.56	0.04	0.00
S × SS	3.11	9.99***	0.06	0.44	0.44	15.51****	0.84	0.00
H × SS	0.26	1.88	6.21**	0.44	0.40	4.46**	7.78***	0.41
S × H × SS	0.48	2.63 <sup>+</sup>	0.52	1.05	0.35	0.68	1.83	0.14
<i>p</i> for Cochran's <i>C</i> test	.28	.03	.32	.58	.50	.20	.10	.52
<i>R</i> <sup>2</sup>	.08	.13	.09	.07	.07	.16	.11	.06

**D. Dependent Variable: State-Anxiety**

Independent Variables	Emotional Support				Practical Support			
	I	II	III	IV	I	II	III	IV
Stressors (S)	0.02	0.00	0.13	0.15	0.01	0.01	0.03	0.09
Hardiness (H)	17.49****	13.56****	15.20****	13.79****	18.26****	14.83****	14.39****	13.67****
Social support (SS) <sup>1</sup>	1.90	0.37	0.28	1.14	0.00	2.03	0.05	0.41
S × H	1.39	0.30	1.09	1.63	0.72	0.57	1.14	1.97
S × SS	1.24	2.25	1.59	0.92	0.04	2.79 <sup>+</sup>	0.15	1.27
H × SS	0.50	0.49	2.48	2.06	0.00	1.71	2.84 <sup>+</sup>	0.02
S × H × SS	1.96	0.55	0.13	0.26	1.82	1.67	0.15	0.97
<i>p</i> for Cochran's <i>C</i> test	.02	.25	.53	.25	.03	.20	.07	.12
<i>R</i> <sup>2</sup>	.13	.10	.11	.11	.11	.12	.10	.10

TABLE 2. (continued)

## E. Dependent Variable: Trait-Curiosity

Independent Variables	Emotional Support				Practical Support			
	I	II	III	IV	I	II	III	IV
Stressors (S)	6.49**	6.25**	4.93**	8.61***	6.96***	6.35**	5.56**	8.09***
Hardiness (H)	28.02***	23.87***	25.11***	20.97***	27.47***	24.24***	28.10***	21.58***
Social support (SS) <sup>1</sup>	1.70	2.18	0.91	5.09**	0.70	0.00	0.24	3.63 <sup>+</sup>
S × H	1.83	0.31	1.00	1.36	1.39	0.90	0.65	1.19
S × SS	0.25	2.30	0.08	0.14	3.25 <sup>+</sup>	2.89 <sup>+</sup>	0.01	0.88
H × SS	1.37	0.34	0.13	5.89**	0.33	0.21	1.63	4.12**
S × H × SS	0.65	0.00	0.00	6.03**	0.21	0.17	0.00	4.76**
<i>p</i> for Cochran's C test	.07	.46	.39	.18	.67	.68	.49	.52
<i>R</i> <sup>2</sup>	.21	.20	.17	.23	.21	.19	.18	.22

## F. Dependent Variable: Trait-Anger

Independent Variables	Emotional Support				Practical Support			
	I	II	III	IV	I	II	III	IV
Stressors (S)	3.89**	4.91**	5.19**	4.10**	4.84**	4.08**	4.86**	4.17**
Hardiness (H)	6.92***	7.28***	5.27**	5.85**	6.89***	5.02**	4.88**	6.56**
Social support (SS) <sup>1</sup>	0.18	0.99	0.03	1.39	0.04	3.52 <sup>+</sup>	0.67	0.40
S × H	1.94	3.67 <sup>+</sup>	1.83	1.21	2.39	1.97	1.54	1.54
S × SS	0.00	3.73 <sup>+</sup>	2.89 <sup>+</sup>	5.01**	0.01	2.96	0.20	0.21
H × SS	0.37	9.09***	0.01	0.07	0.85	7.70***	0.08	0.24
S × H × SS	0.50	2.52	0.00	0.96	0.16	0.35	0.00	1.20
<i>p</i> for Cochran's C test	.01	.22	.36	.11	.18	.09	.33	.02
<i>R</i> <sup>2</sup>	.07	.03	.07	.09	.07	.12	.06	.07

TABLE 2. (continued)  
G. Dependent Variable: Trait-Anxiety

Independent Variables	Emotional Support				Practical Support			
	I	II	III	IV	I	II	III	IV
Stressors (S)	0.94	0.42	1.31	0.44	0.66	0.77	0.92	0.73
Hardiness (H)	24.92****	24.98****	23.68****	20.87****	26.01****	25.76****	25.52****	23.04****
Social support (SS) <sup>1</sup>	3.47 <sup>+</sup>	0.26	10.00****	2.86 <sup>+</sup>	0.99	0.08	4.71**	4.73**
S × H	0.28	0.16	0.02	0.00	0.01	0.03	0.02	0.00
S × SS	0.25	0.02	0.88	0.10	0.04	0.51	0.00	0.30
H × SS	4.36**	0.69	2.26	0.22	0.02	0.97	1.66	0.46
S × H × SS	6.74***	2.10	0.32	0.55	6.08**	4.14**	0.19	0.63
<i>p</i> for Cochran's <i>C</i> test	.00	.00	.00	.00	.00	.00	.00	.00
<i>R</i> <sup>2</sup>	.20	.14	.18	.13	.17	.15	.15	.15

H. Dependent Variable: Frequency of Somatic Complaints

Independent Variables	Emotional Support				Practical Support			
	I	II	III	IV	I	II	III	IV
Stressors (S)	0.33	0.14	0.00	0.06	0.22	0.08	0.14	0.31
Hardiness (H)	0.66	0.20	0.17	0.30	0.59	0.25	0.34	0.70
Social support (SS) <sup>1</sup>	0.01	0.04	1.98	1.78	4.21**	0.01	0.30	0.46
S × H	0.01	0.00	0.28	0.05	0.01	0.03	0.13	0.01
S × SS	0.36	0.23	0.09	1.14	0.12	0.26	0.00	2.18
H × SS	0.14	2.05	0.81	0.03	0.25	6.42**	0.89	1.19
S × H × SS	1.54	0.17	1.90	0.01	0.12	0.00	0.06	0.88
<i>p</i> for Cochran's <i>C</i> test	.03	.02	.04	.04	.04	.12	.04	.03
<i>R</i> <sup>2</sup>	.02	.02	.02	.02	.03	.04	.01	.02

TABLE 2. (continued)

## I. Dependent Variable: Intensity of Somatic Complaints

Independent Variables	Emotional Support				Practical Support			
	I	II	III	IV	I	II	III	IV
Stressors (S)	0.15	0.16	0.50	0.85	0.10	0.47	0.53	0.95
Hardiness (H)	3.38 <sup>+</sup>	2.64 <sup>+</sup>	1.78	1.67	3.26 <sup>+</sup>	2.35	2.19	2.26
Social support (SS) <sup>1</sup>	0.00	1.30	0.00	1.47	0.28	1.22	1.23	0.00
S × H	0.44	1.16	0.08	0.10	0.86	0.95	0.09	0.19
S × SS	0.60	1.12	1.03	0.74	0.64	0.58	0.46	3.06 <sup>+</sup>
H × SS	0.05	9.96 <sup>***</sup>	0.55	0.09	2.42	15.96 <sup>****</sup>	0.85	0.12
S × H × SS	0.13	0.56	0.05	0.15	0.01	0.14	0.19	0.13
<i>p</i> for Cochran's <i>C</i> test	.08	.001	.12	.06	.13	.05	.10	.05
<i>R</i> <sup>2</sup>	.03	.09	.03	.03	.04	.11	.03	.04

## J. Dependent Variable: Satisfaction With Work

Independent Variables	Emotional Support				Practical Support			
	I	II	III	IV	I	II	III	IV
Stressors (S)	0.61	0.02	0.26	0.23	0.13	0.08	0.74	0.43
Hardiness (H)	3.60 <sup>+</sup>	3.73 <sup>+</sup>	5.14 <sup>**</sup>	6.22 <sup>**</sup>	3.19 <sup>+</sup>	3.66 <sup>+</sup>	5.48 <sup>**</sup>	6.06 <sup>**</sup>
Social support (SS) <sup>1</sup>	30.46 <sup>****</sup>	14.17 <sup>****</sup>	6.38 <sup>+</sup>	6.73 <sup>***</sup>	30.47 <sup>****</sup>	8.16 <sup>****</sup>	3.68 <sup>+</sup>	3.27 <sup>+</sup>
S × H	1.80	2.02	1.03	2.90 <sup>+</sup>	1.52	2.48	1.62	2.13
S × SS	0.03	0.06	0.42	0.19	0.00	1.85	0.41	0.62
H × SS	0.24	1.05	1.45	0.29	0.05	1.92	5.77 <sup>**</sup>	0.12
S × H × SS	0.11	0.45	0.78	0.02	0.48	0.46	0.29	0.64
<i>p</i> for Cochran's <i>C</i> test	.04	.61	.32	.05	.12	.29	.76	.47
<i>R</i> <sup>2</sup>	.18	.11	.08	.09	.18	.10	.09	.07



TABLE 2. (continued)  
K. Dependent Variable: Satisfaction With Life

Independent Variables	Emotional Support				Practical Support			
	I	II	III	IV	I	II	III	IV
Stressors (S)	2.31	2.88 <sup>+</sup>	2.16	1.31	2.26	2.38	2.08	1.64
Hardiness (H)	17.68 <sup>****</sup>	18.84 <sup>****</sup>	19.90 <sup>****</sup>	17.63 <sup>****</sup>	20.29 <sup>****</sup>	19.66 <sup>****</sup>	20.92 <sup>****</sup>	19.51 <sup>****</sup>
Social support (SS) <sup>1</sup>	3.52 <sup>+</sup>	0.57	10.79 <sup>****</sup>	3.87 <sup>+</sup>	0.99	2.16	6.56 <sup>**</sup>	3.28 <sup>+</sup>
S × H	0.59	2.29	0.75	1.57	1.25	1.98	1.52	1.40
S × SS	0.01	3.28 <sup>+</sup>	0.59	0.41	0.03	0.96	0.02	0.11
H × SS	0.16	0.00	0.00	0.01	0.34	0.69	0.05	0.04
S × H × SS	4.31 <sup>**</sup>	0.50	0.31	0.83	3.33 <sup>+</sup>	0.51	0.68	0.03
<i>p</i> for Cochran's <i>C</i> test	.35	.24	.56	.17	.08	.23	.61	.18
<i>R</i> <sup>2</sup>	.15	.14	.17	.13	.13	.14	.15	.13

Notes. a—in the rows where effects of stressor, hardiness, social support, and the interaction effects of these variables are analysed, *F* values are presented; 1—for a given dependent variable, 8 analyses of variance were conducted: 4 for emotional support and 4 for practical support. In each column a different index of social support was taken into account: I—support from supervisors, II—support from co-workers, III—support from family, IV—support from friends outside work; <sup>+</sup>—*p* < .10; <sup>\*\*</sup>—*p* < .05; <sup>\*\*\*</sup>—*p* < .01; <sup>\*\*\*\*</sup>—*p* < .001.

- a higher level of curiosity and a lower level of anxiety as a trait than participants with a high level of hardiness but a low level of social support index (group 3), in the case of two interactions (No. 5 and 11 in Table 3).

Seven interactions (in Table 3, No. 4, 6, 7, 8, 10, 12, 13) indicated that a significantly higher level of well-being is characteristic for persons with a high hardiness and a low index of social support (group 3) than for persons with low levels in both types of the mentioned variables (group 1). In the case of two interactions (No. 9 and 15 in Table 3), it turned out that higher results in the area of well-being were achieved by persons with a high level of hardiness and a low value of social support index (group 3) than by the participants who were characterized by low hardiness but high social support (group 2).

Results of the analyses of four interactions (in Table 3, No. 4, 6, 7, 12) indicated that persons with a low level of hardiness and social support (group 1) had lower indexes of well-being (lower work satisfaction, curiosity as a state and trait) than persons with a low level of hardiness but a high level of social support (group 2). The presented relation concerned emotional and practical support from friends and practical support from the family.

Results of three interactions analyses (in Table 3, No. 1, 2, 15) indicated that persons with low levels of hardiness and social support index (group 1) had considerably higher levels of well-being (lower intensity of somatic symptoms, lower level of anger as a trait) than persons with low hardiness but high social support (group 2). In the mentioned interactions hardiness as well as emotional and practical support coming from co-workers were considered. As a result it turned out that persons who had high levels of these indexes of social support and low levels of hardiness had high levels of somatic symptoms' intensity and trait-anger. It should be considered that it is possible that a low level of hardiness and a high level of social support from co-workers is an effect (not a cause) of a high intensity of somatic symptoms and a high level of anger as a characteristic.

### **3.3. Buffering Role of Hardiness and Social Support**

It was assumed that a buffering function of a given mediatory variable consists in decreasing a potentially negative influence of stressors on well-being. Before answering questions on the buffering role of social support

TABLE 3. Statistically Significant Interactions of Hardiness and Social Support Indexes for Particular Indexes of Well-Being

Indexes of Well-Being	No.	Statistically Significant Interactions of Hardiness and Social Support Indexes	Means for Groups			
			1	2	3	4
Intensity of somatic complaints (scale from 0 to 5 points)	1	hardiness × emotional support from co-workers	1.55	2.22 (1)*	1.73	1.47 (2)
	2	hardiness × practical support from co-workers	1.47	2.23 (1)	1.81	1.41 (2)
Frequency of somatic complaints (scale from 0 to 5 points)	3	hardiness × practical support from co-workers	0.92	1.21	1.16	0.84 (2)
	4	hardiness × practical support from family	3.79	4.19 (1)	4.23 (1)	4.18 (1)
Curiosity as a state (scale from 1 to 4 points)	5	hardiness × emotional support from co-workers	2.68	2.69	2.79	3.04 (1,2,3)
	6	hardiness × emotional support from friends	2.58	2.84 (1)	2.95 (1)	2.86 (1)
	7	hardiness × practical support from friends	2.57	2.89 (1)	2.90 (1)	2.91 (1)
Anger as a state (scale from 1 to 4 points)	8	hardiness × emotional support from family	1.88	1.61	1.38 (1)	1.56 (1)
	9	hardiness × practical support from friends	1.60	1.91	1.46 (2)	1.47 (2)
	10	hardiness × practical support from family	1.87	1.63	1.34 (1)	1.61
Anxiety as a trait (scale from 1 to 4 points)	11	hardiness × emotional support from supervisors	2.47	2.47	2.28	2.04 (1,2,3)
	12	hardiness × emotional support from friends	2.57	2.81 (1)	3.01 (1)	2.97 (1)
Anger as a trait (scale from 1 to 4 points)	13	hardiness × practical support from friends	2.59	2.80	2.99 (1)	2.98 (1)
	14	hardiness × emotional support from co-workers	2.02	2.28	2.05	1.89 (2)
Anger as a trait (scale from 1 to 4 points)	15	hardiness × practical support from co-workers	1.97	2.31 (1)	2.01 (2)	1.94 (2)

Notes. group 1—persons with low hardiness and low social support, group 2—persons with low hardiness and high social support, group 3—persons with high hardiness and low social support, group 4—persons with high hardiness and high social support; \*—the group from a particular column differs significantly from the group whose number is in parentheses (Benferroni's test;  $p < .05$ ).

and hardiness it should be checked if interactions of potentially buffering variables and stressors are important sources of variance for particular indexes of well-being. It should be analyzed whether persons with high levels of stressors and high levels of potential buffering variables—hardiness, social support, or both—are characterized by better indexes of well-being than persons with a high level of stressors but a low level of indexes, which are potential buffering variables.

**Interactions between stressors and social support.** For 88 possible interactions stressors  $\times$  social support index (see Table 2), only 3 turned out to be important sources of variance for indexes of well-being. They are presented in Table 4. Mean values of well-being indexes for people differing in the level of stressors and the social support index are also given there.

It turned out that persons who are characterized by a high level of stressors and a high level of emotional or practical support from co-workers (group 4) had a statistically higher level of anger as a state than persons with a high level of stressors but a low level of emotional or practical support from co-workers (group 3). In this case we can suspect that social support played a function contradictory to buffering—it increased the negative influence of stressors on anger as a state.

The results of the analyses showed that

- persons with a high level of stressors and low practical support from co-workers (group 3) had a lower level of state-anger than persons with a low level of that index of social support and a low level of stressors (group 1). A similar regularity was noticed in the case of the interaction stressors  $\times$  emotional support from friends, which was a significant source of variance of trait-anger;
- persons with a high level of stressors and a high level of practical support from co-workers (group 4) had a higher level of state-anger than participants with a low level of stressors but a high level of the mentioned index of social support (group 2).

**Interaction between stressors and hardiness.** As far as the buffering role of hardiness is concerned, the results are ambiguous. None of the interactions of stressors with hardiness turned out to be an important source of variance for well-being indexes. In this study hardiness did not play a buffering role in the relation stressors–well-being.

**Interaction between stressors, hardiness, and social support.** Despite the fact that neither hardiness nor social support plays a buffering role, it is possible that the interaction between those variables buffers the influence of

TABLE 4. Statistically Significant Interactions of Stressors and Social Support Indexes for Particular Indexes of Well-Being

Indexes of Well-Being	No.	Statistically Significant Interactions of Stressors and Social Support Indexes	Means for Groups			
			1	2	3	4
Anger as a state (scale from 1 to 4 points)	1	stressors × emotional support from co-workers	1.69	1.52	1.42	1.84 (3)*
	2	stressors × practical support from co-workers	1.70	1.51	1.36 (1)	1.85 (2,3)
Anger as a trait (scale from 1 to 4 points)	3	stressors × emotional support from friends	1.93	2.00	2.24 (1)	1.98

Notes. group 1—persons with low stressors and low social support, group 2—persons with low stressors and high social support, group 3—persons with high stressors and low social support, group 4—persons with high stressors and high social support; \*—the group from a particular column differs significantly from the group whose number is in parentheses (Benferroni's test;  $p < .05$ ).

TABLE 5. Statistically Significant Interactions of Stressors, Hardiness and Social Support Indexes for Particular Well-Being Indexes

Well-Being Indexes	No.	Statistically Significant Interactions of Stressors, Hardiness and Social Support Indexes	Means for Groups							
			1	2	3	4	5	6	7	8
Satisfaction with life (scale from 1 to 6 points)	1	stressors × hardiness × emotional support from supervisors	3.60	3.89	4.03	4.04	3.58	3.54	3.79	4.16 (1,5,6)*
Affect balance (scale from -5 to 5 points)	2	stressors × hardiness × emotional support from supervisors	-0.21	0.86	1.41	1.35	1.05	1.21	0.67	2.39 (1)
	3	stressors × hardiness × emotional support from co-workers	0.18	0.67	1.59	1.18	1.50	0.73	1.29	2.53 (1)
	4	stressors × hardiness × practical support from supervisors	-0.07	0.78	1.68	1.09	0.87	1.56	1.58	1.79 (1)
Anxiety as a trait (scale from 1 to 4 points)	5	stressors × hardiness × emotional support from supervisors	2.51	2.40	2.14	2.09 (1)	2.41	2.55 (3,4)	2.42	2.00 (1,2,5,6,7)
	6	stressors × hardiness × practical support from supervisors	2.54	2.34	2.07 (1)	2.16 (1)	2.44 (3)	2.53	2.29	2.06 (1,5,6)
	7	stressors × hardiness × practical support from co-workers.	2.44	2.44	2.04	2.17	2.40	2.56 (3)	2.28	2.06 (6)
Curiosity as a trait (scale from 1 to 4 points)	8	stressors × hardiness × emotional support from friends	2.52	2.67	2.85	3.00 (1)	2.63 (4)	3.02 (1)	3.11 (1,2,5)	2.85 (1)
	9	stressors × hardiness × practical support from friends	2.52	2.68	2.85	3.03 (1)	2.68	2.99 (1)	3.14 (1,2,5)	2.95 (1)

Notes. group 1—low level of stressors, low hardiness, low social support, group 2—low level of stressors, low hardiness, high social support, group 3—low level of stressors, high hardiness, low social support, group 4—low level of stressors, high hardiness, high social support, group 5—high level of stressors, low hardiness, low social support, group 6—high level of stressors, low hardiness, high social support, group 7—high level of stressors, high hardiness, low social support, group 8—high level of stressors, high hardiness, high social support; \*—the group from a particular column differs significantly from the group whose number is in parentheses (Benferroni's test;  $p < .05$ ).

stressors on well-being. For 88 possible interactions stressors  $\times$  hardiness  $\times$  social support (see Table 2), 9 differentiated the level of well-being. Those interactions are presented in Table 5. Mean levels of well-being indexes for persons differing in the level of stressors, hardiness, and social support index are presented in this table. In order to answer the question of the buffering function of the interaction hardiness  $\times$  index of social support, one should focus on those groups that were characterized by a high level of stressors. In Table 5 those are groups 5, 6, 7, 8.

Persons who were characterized by a high level of stressors, hardiness, and low emotional or practical support from friends (group 7), showed greater trait-curiosity (interaction No. 8 and 9) than persons with high levels of stressors, low levels of hardiness, and emotional or practical support from friends (group 5). Participants with high levels of stressors, hardiness, and emotional support from supervisors (group 8) had a considerably higher level of life satisfaction (interaction No. 1) than participants who, having a high level of stressors, had low levels of hardiness and emotional support from supervisors (group 5), or low levels of hardiness but high emotional support from supervisors (group 6).

Among persons exposed to a high level of stressors, the lowest level of trait-anxiety was shown by participants with high hardiness and a high social support index (group 8). These persons had a considerably lower level of trait-anxiety than

- persons with a high level of stressors, low hardiness, and low emotional or practical support from supervisors (interaction No. 5 and 6, group 5);
- persons with a high level of stressors, low hardiness, and a high level of one of three indexes of social support (group 6): emotional support from supervisors (interaction No. 5), practical support from supervisors (interaction No. 6), practical support from co-workers (interaction No. 7);
- participants with a high level of stressors, high hardiness, and a low level of emotional support from supervisors (interaction No. 5).

#### 4. DISCUSSION

First, it should be noticed that the study was conducted in a specific sample: women employed as clerks. As it has been pointed out, women with the same occupation as men can perceive levels of work-related stress differently. Different effects of social support on both genders can also appear.

Therefore, we propose to consider work-related stress and the effects of moderating variables on health for men and women separately. Second, the results consider the moderating effects of social support and hardiness regarding a specific source of stress. While analyzing the relationships between stress and health, different sources of stress could be considered. Cooper, Cooper, and Eaker (1988) enumerated a long list of possible work-related causes of stress: occupational demands intrinsic to the job, role conflict (stress resulting from conflicting demands), role ambiguity (stress resulting from uncertainty), over- and underload (having too much or too little to do), responsibility for others (heavy burden), social isolation, lack of participation in decisions, poor performance appraisal (stress from little, none, or obviously biased feedback), poor working conditions, organizational changes, career development (being stuck at the same level), and so forth. The authors of another model underline the role of stressors related to job demands and control (cf. job-demand-control-social support model; Johnson & Hall, 1994; Johnson, Hall, & Theorell, 1989). Role conflict and role ambiguity are supposed to be the causes of stress in the model of job-related burnout (cf. Greenglass, Burke, & Konarski, 1997)<sup>5</sup>. It seems very difficult or impossible to take into account all sources of stress in one study. The authors decided to choose only one stressor that appears in different work-related stress models.

The results of the study conducted on a sample of female clerks showed that there is a relationship between hardiness and indexes of emotional support. Hardiness is also related to practical support coming from supervisors. The described relationship is weak. The highest coefficient of the correlation was .21. Due to the cross-section character of the study, it is unfortunately not possible to say anything about the causes of the studied relationships: whether hardiness appears as an effect of perceiving social support or whether it is social support that depends on hardiness. Attention should also be drawn to the fact that the relation between hardiness and social support can be mediated by other variables.

According to Suzanne Kobasa (1979), the author of the concept of hardiness, persons with a high level of hardiness can use various accessible resources. Yet, we do not know what makes persons decide to use or not to use resources related to support. It is possible that the spectrum of mediators includes certain personality variables (e.g., neuroticism), environmental

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<sup>5</sup> In the present study, role conflict is one of the stressors measured with the instrument for job demands.



factors (e.g., types of stressors experienced), coping strategies (Lazarus & Folkman, 1984). Summing up, it can be said that there is a relation between hardiness and social support. There are also some indications to believe that certain personality and environment variables mediate in this relation. This is an interesting area for further studies.

As far as the relation of two independent variables (hardiness and social support) with well-being is concerned, the relationship between hardiness and indexes of well-being seems to be clearest. People with a high level of hardiness are characterized by a higher level of mental well-being. Yet there was no connection between hardiness and the somatic aspect of well-being. In this context, the obtained data are in accordance with Blaney and Ganellen (1990). Also in the study by Bartone et al. (1989) hardiness was not directly connected with the level of the somatic aspect of well-being.

A direct connection between social support and indexes of well-being emerged, but without clear regularity. Three indexes of well-being (intensity of somatic symptoms, state-anxiety, trait-anger) were not connected at all with any of the eight indexes of social support. The level of the remaining seven indexes of well-being depended on at least one of the indexes of social support. It is difficult to determine which index of social support is most closely connected with well-being<sup>6</sup>. The presented data indicated that certainly one general conclusion of the studies on the connection between social support and well-being can be made: Multidimensionality of both variables must be considered. Depending on the type of the considered index of social support and well-being, totally different results can be achieved.

Data concerning interaction effects of social support and hardiness on well-being indexes was also univocal. Only about one sixth of the studied interactions (15 out of 88 possible) was an important source of variance of well-being indexes. Only in the case of two interactions did it turn out that persons with a high level of social support and hardiness (group 4) had considerably better indexes of well-being than the remaining groups (group 1 with a low level of hardiness and social support, group 2 with a low level of hardiness and high support, group 3 with a high level of hardiness and low support). The results of two interactions showed that a considerably better level of well-being indexes was characteristic for persons from group 3 than group 2. There was no indication of a reverse situation, that is, that persons with a high level of hardiness and a low level of social support

<sup>6</sup> At least partly to blame is the statistical procedure, which did not make it possible to study dependencies between particular indexes of social support.

(group 3) had worse indexes of well-being than participants characterized by a low level of hardiness but a high level of support (group 2). It was also noticed—which seems worth emphasizing—that in the case of three interactions, persons with a low level of support and hardiness (group 1) had considerably better indexes of well-being than persons with a low level of hardiness and a high level of support (group 2). Summing up the relationships between hardiness and social support with well-being, it can be said that both independent variables are directly related to well-being. At the same time it seems that hardiness rather than social support has a stronger relation with well-being. A hypothesis about the interactive influence of both variables on well-being was partially confirmed. It also turned out that for a high level of well-being, a high level of hardiness is more important than a high level of support. Moreover, in some cases with a low level of hardiness, a high level of support is accompanied by a low level of well-being. A negative relationship between support and well-being can appear.

In the literature concerning social support there is an on-going discussion on the potential buffering function of this variable. As Payne and Jones (1987) and Thoits (1982) already in the 1980s determined, propositions of rejecting the buffering role slowly seems to dominate. In our study we determined that a significant interaction of stressors with social support turned out to be an important source of variance of well-being indexes in three cases only (for the 88 possible ones). What is more, this turned out where it was expected that a buffering effect would take place, the obtained results indicated quite an opposite effect: Persons with a high level of stressors and a high level of emotional or practical support from supervisors had a higher level of anger as a trait than persons with a high level of stressors but a low level in the area of the mentioned support indexes.

The results concerning a buffering role of hardiness are univocal. In this particular sample the hypothesis of a buffering role of this variable has to be rejected. None of the interactions stressors  $\times$  hardiness was a significant source of variance for well-being indexes.

A buffering role of the interaction of social support and hardiness does not seem to play a very significant role. Only 9 interactions of the stressors  $\times$  hardiness  $\times$  social support type (for the 88 possible ones) turned out to be an important source of variance for some well-being indexes. Out of these 9 interactions, only 4 confirmed their buffering effect. Generally, it can be said that the results did not confirm that social support and hardiness buffer a negative influence of stressors on well-being. It is worth noticing that interesting data can be obtained studying the influence of social support

and hardiness on the perceived level of stressors. The relation is mentioned by many scientists (e.g., House, 1981; Payne & Jones, 1987; Thoits, 1982). This was also confirmed by the results of the study on managerial staff (Cieślak, 1998). It turned out in that study that the level of stressors connected with the role depended both on social support and hardiness. The influence of hardiness and social support on the level of perceived stressors should be considered in further studies.

There are many limitations connected with the generalization of the results. Factors connected with the selection of the studied group (e.g., participants lived and worked in one city) should be mentioned here. The participants were women: All results can be specifically gender-related. It is also important to clearly realize that the statistical method that was used and the cross-section model of study do not allow to determine what is the cause and what is the effect, for example, is it social support that influences well-being or does well-being influence support (and maybe there is a mutual dependence)? Moreover, the value of  $R^2$  indexes—which vary between .01 and .23—informs us that the three independent variables considered in the study (stressors, hardiness, and social support) do not explain the high percentage of variance of well-being.

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