Psychiatry and Clinical Neurosciences (1998), **52**, 29–36

Regular Article

Social support and pregnancy: I. Factorial structure and psychosocial correlates of perceived social support

TOSHINORI KITAMURA, FRCPsych,[1] MARI A. TODA, MA,[2] SATORU SHIMA, MD,[3] KENSUKE SUGAWARA, PhD,[4] AND MASUMI SUGAWARA, PhD[1]

[1]*Department of Sociocultural Environmental Research, National Institute of Mental Health, NCNP, Chiba,* [2]*Department of Educational Psychology, Hokkaido University of Education, Hokkaido,* [3]*Tokyo Keizai University, Tokyo, and* [4]*Kensuke Sugawara, Edogawa University, Chiba, Japan*

Abstract In a questionnaire survey among 1329 first-trimester pregnant women, social support providers were divided by factor analysis into husband, 'premarital network' (parents and friends) and 'postmarital network' (children and mother-in-law), while social support contents were divided into 'given' (emotional, informational and instrumental support) and 'giving' (nurturing opportunity and general confiding). The husband was most frequently nominated by the woman as the support provider in both of these categories. Multiple regression analyses revealed that a husband's poor 'given' support was predicted by the presence of premenstrual irritability, a lower level of the woman's own education, her smoking habits and past experience of pregnancy termination, while a husband's poor 'giving' support was predicted by current older age, smoking habits and past experience of delivery.

Key words marriage, parenting, pregnancy, self-consciousness, social support.

INTRODUCTION

There has been ample evidence that social support has a pivotal role in preventing the onset of mental ill-health.[1] The concept of social support is often divided into 'perceived' and 'enacted' supports; it is the perceived support that buffers the adverse effects of negative life events on the onset of psychopathology.[2–4] Although there seems to be room for further debate,[5] Henderson *et al.* found that it was not the lack of or reduced availability of social support (number of support providers), but the lowered perceived adequacy of social support (i.e. satisfaction with the relationship) that predicted the onset of psychopathology (detected by the General Health Questionnaire[6] in their study) in the presence of adversity (life events).[2–4]

Although there has been much study of how perceived social support maintains the mental health of individuals, even when faced with adversity, little is known as to how perceived social support is developed and maintained. One can speculate that perception of the surrounding human environment as supportive (or undermining) is determined not only by the existence of people currently available for help, but also by the way the subject views it subjectively, by using a working model internalized since infancy.[7–8]

Some studies support this notion. For example, Flaherty and Richman[9] studied first-year medical students' perception of their current social support and of their parents' attitudes when they were children. They found that low maternal affection during childhood was associated with poor perception of their social support that the students thought would be available when needed. A Japanese community population was studied and it was found that it was only among men that perceived maternal affection was correlated with satisfaction as to current social support (Watanabe K *et al.*, unpubl. data, 1997). However, perception of availability of support from others may be determined by many other factors; for example, experience with peers at school, with one's spouse and with other family members, as well as socioeconomic status. The satisfaction with and reliance on the relationship with a particular person may be determined by how he/she reacted to past requests for support and what he/she actually did. It may also be related to self-confidence (self-esteem) or other personality traits and may be more variable than stable, depending on the individual's current situation. Thus, determinants of perceived social support in one situation may be irrelevant in a different situation. In order to better understand the role of perceived social support, it is necessary to investigate the development and determinants of its perception in different contexts.

Present investigation

We have undertaken a large-scale survey on mental health and mental illness during the perinatal period.[10,11–14] The subjects were more than 1000 pregnant women, recruited from those attending a general hospital in Japan. Because they were almost all the women who attended the antenatal clinic of that hospital, which covered a wide catchment area, and we adopted no

Correspondence address: Toshinori Kitamura, FRCPsych, Department of Sociocultural Environmental Research, National Institute of Mental Health, NCNP, 1-7-3, Kohnodai, Ichikawa, Chiba, Japan.

Received 13 May 1997; revised 2 July 1997; accepted 1 September 1997.

exclusion criteria, we believe that our subjects were a fair, if not complete, representative sample of pregnant women in Japan. One of the principal aims of the survey was to identify psychosocial determinants of the onset of depression during the perinatal period. Measures of social support and other psychosocial variables were included, providing an opportunity to investigate the association of perceived social support with a variety of psychosocial variables and its specific link to depressive symptoms.

First, we hypothesized that the husband would be a more important figure of perceived social support than anyone else for women in this stage of their life cycle. For women who are married and have no or only a few children, parents may no longer be figures of support; nor are children, because they are too young to be supportive.

Second, we hypothesized that perceived social support could be divided into: (i) 'given'; and (ii) 'giving'.[15] The perceived social support of the 'given' type consists of emotional, informational and instrumental support that the subject expects others will give him/her when in trouble. This may give the subject a sense of security. In contrast, perceived social support of the 'giving' type consists of perceptions that the subjects will have opportunities to be useful or do something useful for others. This may give the subject a sense of self-worth and a goal for her life.

Third, we hypothesized that the perceived support of the husband would be correlated with the woman's obstetric history and her own psychosocial characteristics, which include life history and the nature of the marriage. Social support is perhaps the end-product of all the individual's interpersonal relationships and interactions, based on her sociodemographic and personality traits. Thus, the perceived support of the husband may vary according to a wide array of psychological and social correlates.

METHODS

Participants

The participants were 1329 women attending an antenatal clinic in the obstetric department of a general hospital in Kawasaki, a heavily industrialized city in Japan. Subjects were excluded from the study if they were at more than 12 weeks gestation. The age of the participants ranged from 16 to 42 years (mean (±SD) 28.0±4.3 years). A total of 635 women were expecting their first baby. Of these 635, 424 had not previously experienced a pregnancy.

Measures

Social support

The Social Support Scale[16] consists of seven items, for each of which the subject was asked to nominate one best person to suit the situation. Two items tap emotional support (the person whom you can be or do something with to feel comfortable, enjoyable or content; the person with whom you can share internal feelings). One item taps informational support (the person with whom you can exchange opinions and ideas freely), one taps instrumental support (the person who you can consult or rely on when in trouble); two refer to nurturing opportunity (the person who needs you; the person for whom you wish to do as much as you can) and one taps general perception of the support (the person in whom you confide). The source of the perceived social support was retrospectively categorized into: (a) husband, (b) father, (c) mother, (d) parents, (e) friends, (f) mother-in-law, (g) children and (h) others. The total score of each support source was the number of times that source was nominated; it can range between 0 and 7.

Early experiences

Early loss experience was defined as either death or separation from a parent for 12 months or longer before the woman was 16 years of age.[17] If the subject reported any loss experience, further enquiries were made about both the subject's and the parent's age at the time of loss, the cause of the loss and (for separation) its duration in years.

The Parental Bonding Instrument (PBI)[18] was designed to measure how a child viewed the parents' attitudes towards him/her. It consists of 25 items, with a 4 point scale (0–3). It has two subscales: 'care' and 'overprotection', which respectively, indicate emotional warmth and prevention of independent behaviour; higher scores indicate a higher degree of care and overprotection. The validity of the PBI was examined for both the English[19] and Japanese[20] versions. We reduced the number of PBI items to 16 (eight care and eight overprotection items), which had the highest factor loadings on the two factors in the original report of Parker *et al.*,[18] due to the limited questionnaire space of our study. The two subscales can range between 0 and 24. The mean (±SD) scores for paternal care, paternal overprotection, maternal care and maternal overprotection were 15.5±4.5, 7.3±3.7, 18.0±4.1 and 7.0±3.8, respectively. Their respective Cronbach's α coefficients were 0.841, 0.737, 0.830 and 0.748. In the present study, the subjects were dichotomized (divided into two groups) above and below the median: 15/16 for paternal care, 6/7 for paternal overprotection, 17/18 for maternal care and 6/7 for maternal overprotection.

Obstetric history

Obstetric information was collected through a questionnaire, filled in by attending obstetricians. The age of menarchical onset ranged from 9 to 24 years, with a mean (±SD) of 12.7±1.3 years. The subjects were dichotomized below and above the median (12/13) for statistical analyses. Other information was collected by a questionnaire, distributed to the subjects on the day when the foetal heart beat had been confirmed. Menstrual pain and premenstrual irritability were measured by single items with a four-point scale: (1) never; (2) sometimes; (3) frequently; and (4) always. However, in the present study, menstrual pain and premenstrual irritability were dichotomized into present (2–4) and absent (1).

Personality

The Japanese modification[21] of the Self-consciousness Scale (SCS)[22] consists of 21 items, with a 7 point scale (1 (completely disagree) to 7 (completely agree)). The SCS has two subscales: private self-consciousness and public self-consciousness. Both subscales consist of 10 items each. The mean (±SD) private and public SCS scores were 30.2±6.2 and 28.4±7.2, respectively. Their respective Cronbach's α coefficients were 0.831 and 0.748. In the present study, the subjects were dichotomized above and below the median: 30/31 for the private SCS and 29/30 for the public SCS.

Sociodemographics

According to the median of the current age (27/28), the women were divided into two groups. With regard to educational level, 9.3% of women had completed junior high school, 63.2% had completed high school, 18.7% had completed college (or technical school), 8.8% had completed university and none had completed a Master's/Doctorate degree. The corresponding figures for the husbands were 11.9, 50.0, 3.9, 32.5 and 1.6%, respectively. Their annual income was rated at every 2 million yen; we found the sharpest difference in social support measures below and above 2 million; those women who earned below 2 million yen comprised only 3.7% of the sample. Approximately half (58.0%) the women lived on 4–6 million yen per year. Seventy-two per cent of women had a full-time or part-time job outside home, whereas 28% of the women were housewives.

Sixty-four per cent of the women lived in a flat, whereas 36% lived in a detached house. Of those who lived in a flat, approximately half were in high-rise dwellings, while the other half lived in a wooden, low (usually one- to three-storeys) rental house shared by several families (called an 'apartment' in Japan). Our previous study[10] had shown that the woman's expectation that the current accommodation would be crowded after the birth of the child was associated with depression during pregnancy. In the present study, 36.3% of women reported that this would be so.

The number of people living together was between 0 and 7 (mean ±SD: 2.0±1.1). For statistical analyses, the women were categorized into those whose family members were two or fewer and those whose family members were three or more.

Health behaviour

As indicators of the woman's health-related behaviour, we measured: (i) drinking alcoholic beverages; and (ii) smoking. Women were divided into two groups according to whether they did or did not drink alcoholic beverages and smoke.

Marriage

The women had married their current husband at a mean (±SD) age of 24.8±3.5 years, with a range of 17–42 years. For statistical analyses, women were divided below and above the median (24/25). Arranged marriage is a Japanese tradition in which a 'go-between', usually a middle-aged or elderly couple with social prestige, introduce a young unmarried man and woman with the consent of the parents on both sides, after exchanging personal details between the two families. The man and woman will never have met one another before, but they start 'dating' as possible future partners, having a free choice to either accept or refuse after a few meetings. Of the pregnant women in the present sample, 17.4% had married in this manner, while the remaining 82.6% had chosen the same method as in Western countries. The premarital courting period, in months, was between 1 and 144, with a mean (±SD) of 31.5±22.8 months. Subjects were dichotomized below and above the median (19/20). In the present sample, 3.6% of women and 3.9% of husbands were remarried.

Procedure

All participants in the study were first requested to fill in the questionnaires in early pregnancy (when the foetal heart beat was first confirmed by ultrasonography) and then in middle pregnancy (at approximately 20 weeks gestation). The questionnaires distributed in early pregnancy included all the items, other than the SCS and the PBI, which were included in the middle pregnancy questionnaire. All statistical analyses were undertaken by using the SPSS-X program.[24]

RESULTS

Descriptive statistics and factorial structure of perceived social support

The husband was the most frequently nominated person for each item, ranging from 62.1% ('whom you can consult or rely on when in trouble') to 85.3% ('whom you can confide in'), with a median of 77.4% (Table 1). Other support resources were nominated much less frequently. However, it is of note that the mother was nominated by 17.5% of women as the person whom they could consult or rely on when in trouble, friends were nominated by 13.0% of women as the persons with whom they could exchange opinions and ideas freely and children were nominated by 11.4% of women as the persons for whom they wished to do as much as they could.

The total scores of different support resources were entered into a factor analysis (principal component solution) with varimax rotation (Table 2). When the screen test was applied, it was found that two factors were most appropriate. The first factor, which explained 23.8% of the total variance, loaded very negatively on the husband and positively on the mother, friends and parents. The second factor, which explained 13.6% of the total variance, was loaded heavily on children and the mother-in-law.

Although the husband was loaded on the first factor, on which mother, friends and parents were also loaded, we considered it would be feasible to isolate the husband as a discrete support resource, because he was nominated by women far more frequently than anyone else and the direction

Table 1. Sources of perceived social support by types of support ($n = 1329$)

Perceived social support	Husband (%)	Father (%)	Mother (%)	Parents (%)	Friends (%)	Mother-in-law (%)	Children (%)	Others (%)
The person...								
Whom you can be or do something with to feel comfortable, enjoyable or content	79.5	0.4	4.9	1.4	7.6	0.2	2.0	1.9
Whom you can consult or rely on when in trouble	62.1	2.0	17.5	2.1	7.1	0.7	0.0	6.8
With whom you can exchange opinions and ideas freely	69.2	0.8	7.4	1.1	13.0	0.3	0.0	6.2
With whom you can share internal feelings	77.4	0.4	4.8	1.2	9.4	0.2	0.2	3.5
Who needs you	81.4	0.5	2.6	2.3	0.6	0.1	8.7	0.9
In whom you confide	85.3	1.3	3.5	3.4	0.4	0.0	1.0	1.3
For whom you wish to do as much as you can	69.8	1.1	5.9	4.8	0.8	0.2	11.4	1.9
Total score*	5.2 ± 2.0	0.1 ± 0.4	0.5 ± 0.9	0.2 ± 0.7	0.4 ± 0.9	0.0 ± 0.1	0.2 ± 0.6	0.2 ± 0.7

*Data are the mean ± SD.

Table 2. Factor analysis of sources of perceived social support

Sources of perceived social support	I	II
Husband	−0.922	−0.309
Mother	0.576	0.001
Friends	0.514	0.078
Parents	0.480	−0.193
Father	0.258	−0.152
Others	0.222	0.199
Children	0.123	0.767
Mother-in-law	−0.145	0.616
% Variance explained	23.8	13.6

of the factor loading of the husband was opposite to that of other support resources. Hence, we set up three composite scores of social support resources: (i) 'husband' (one item only); (ii) 'premarital network' (summation of scores of mother, friends and parents); and (iii) 'postmarital network' (summation of scores of children and mother-in-law). It is of note that the 'postmarital network' consists mainly of the support of children, because that from the mother-in-law was relatively small. The range of the scores was 0–7 for the 'husband', 0–21 for the 'premarital network' and 0–14 for the 'postmarital network'.

The next question posed was the factorial structure of the content of social support from each support resource. The seven item scores of each resource (i.e. 'husband', 'premarital network' and 'postmarital network') were entered into a factor analyses (principal component solution) with varimax rotation. All the three factor analyses yielded two factors each, with virtually the same factor loading pattern (Table 3). Thus, one factor was loaded heavily on items tapping emotional, informational and instrumental support, while another was on items tapping nurturing opportunity and perception of general support. It was interpreted that the first factor indicated 'given' support, whereas the second indicated 'giving' support.

From the above two factor analyses of the support resource and support content, we set up six composite variables (i.e. three resources ('husband', 'premarital' and 'postmarital') × 2 contents ('given' and 'giving')).

Table 3. Factor analysis of types of perceived social support

Perceived social support	Husband		Premarital network		Postmarital network	
	I	II	I	II	I	II
The person...						
Whom you can be or do something with to feel comfortable, enjoyable or content	0.58	0.30	0.60	0.26	0.28	0.72
Whom you can consult or rely on when in trouble	0.71	0.11	0.68	0.15	−0.01	0.37
With whom you can exchange opinions and ideas freely	0.80	0.08	0.80	0.08	0.03	0.57
With whom you can share internal feelings	0.74	0.15	0.76	0.16	−0.02	0.61
Who needs you	0.51	0.84	0.10	0.78	0.82	0.00
In whom you can confide	0.27	0.71	0.22	0.78	0.61	0.10
For whom you wish to do as much as you can	0.18	0.82	0.21	0.79	0.81	0.03

Psychosocial correlates of perceived social support

When examining possible correlates of perceived social support, a two-tailed *t*-test was applied for each composite variable (Table 4). Because six variables of social support and 30 predictor variables were dealt with, type I error was controlled with the Bonferroni method to adjust alpha to 0.000 (alpha of 0.05 divided by 6 and again by 30). Table 4 describes only the data of predictor variables with significant findings. A full Table will be available on request to the first author.

None of the early-life predictors (early loss experiences and perceived rearing by the parents) showed a significant association with any of the social support variables.

Of the obstetric predictors, menstrual pain was associated with none of the social support measures, while premenstrual

Table 4. Prediction of perceived social support by psychosocial predictors

	Husband		Premarital network		Postmarital network	
	Given	Giving	Given	Giving	Given	Giving
Obstetrical history						
Premenstrual irritability						
No ($n = 1034$)	2.97 (1.29)	2.40 (0.98)	0.73 (1.12)	0.23 (0.63)	0.03 (0.19)	0.20 (0.54)
Yes ($n = 288$)	2.60 (1.41)	2.28 (1.04)	0.93 (1.18)	0.28 (0.72)	0.05 (0.26)	0.72 (0.64)
P	0.000*	0.081	0.007	0.328	0.257	0.056
Past pregnancy						
No ($n = 424$)	2.92 (1.29)	2.46 (1.00)	0.76 (1.11)	0.29 (0.73)	0.01 (0.11)	0.03 (0.20)
Yes ($n = 905$)	2.82 (1.35)	2.32 (1.00)	0.78 (1.15)	0.22 (0.61)	0.04 (0.24)	0.30 (0.66)
P	0.469	0.013	0.812	0.072	0.001	0.000*
Past delivery						
No ($n = 635$)	2.91 (1.32)	2.48 (0.98)	0.77 (1.13)	0.30 (0.74)	0.02 (0.13)	0.03 (0.22)
Yes ($n = 694$)	2.85 (1.35)	2.26 (1.01)	0.78 (1.15)	0.19 (0.55)	0.05 (0.26)	0.38 (0.72)
P	0.422	0.000*	0.918	0.003	0.002	0.000*
Termination of pregnancy (women with past pregnancy only)						
No ($n = 591$)	2.99 (1.27)	2.32 (0.98)	0.70 (1.09)	0.19 (0.55)	0.05 (0.26)	0.35 (0.70)
Yes ($n = 314$)	2.63 (1.47)	2.31 (1.03)	0.92 (1.24)	0.28 (0.70)	0.04 (0.20)	0.21 (0.56)
P	0.000*	0.893	0.009	0.039	0.367	0.001
Sociodemographics						
Own education						
Up to high school ($n = 956$)	2.80 (1.37)	2.35 (1.01)	0.83 (1.17)	0.25 (0.66)	0.03 (0.18)	0.21 (0.56)
College or more ($n = 363$)	3.14 (1.15)	2.43 (0.95)	0.64 (1.03)	0.23 (0.64)	0.05 (0.28)	0.23 (0.59)
P	0.000*	0.189	0.004	0.752	0.109	0.508
Husband education						
Up to high school ($n = 811$)	2.79 (1.38)	2.36 (1.01)	0.82 (1.16)	0.25 (0.66)	0.03 (0.18)	0.19 (0.54)
College or more ($n = 496$)	3.08 (1.21)	2.41 (0.95)	0.69 (1.10)	0.22 (0.63)	0.04 (0.25)	0.25 (0.61)
P	0.000*	0.330	0.035	0.406	0.626	0.115
Own occupation						
Housewife ($n = 898$)	2.90 (1.33)	2.37 (0.98)	0.75 (1.12)	0.22 (0.62)	0.03 (0.22)	0.26 (0.61)
Job outside home ($n = 344$)	2.87 (1.32)	2.40 (1.01)	0.86 (1.21)	0.32 (0.75)	0.03 (0.17)	0.11 (0.43)
P	0.730	0.661	0.116	0.026	0.710	0.000*
Family members						
Two or fewer ($n = 500$)	2.86 (1.34)	2.47 (0.98)	0.79 (1.14)	0.29 (0.73)	0.02 (0.14)	0.03 (0.25)
Three or more ($n = 829$)	2.89 (1.33)	2.30 (1.01)	0.76 (1.14)	0.21 (0.59)	0.04 (0.24)	0.32 (0.68)
P	0.685	0.002	0.637	0.059	0.033	0.000*
Health behaviour						
Smoking						
No ($n = 1066$)	2.97 (1.29)	2.42 (0.96)	0.75 (1.13)	0.23 (0.64)	0.03 (0.21)	0.21 (0.56)
Yes ($n = 247$)	2.55 (1.43)	2.15 (1.09)	0.89 (1.18)	0.31 (0.70)	0.04 (0.23)	0.23 (0.59)
P	0.000*	0.000*	0.084	0.069	0.393	0.695

Note: SD figures in parentheses.
*$P = 0.000$.

irritability was associated with reduced 'given' support from the husband. Experience of past pregnancy and past delivery was associated with lower scores of the husband 'giving' support. Although a past experience of miscarriage (natural abortion) was associated with none of the perceived social supports, past experience of termination of pregnancy (induced abortion) was associated with reduced 'given' support from the husband.

Personality traits measured by the SCS scores did not differ between any pair of the two groups.

Of the sociodemographic predictors, the woman's own educational level (college or higher) was found to be associated with better 'given' support from the husband. As with the woman's own education, the husband's educational level (college or higher) was associated with better 'given' support from the husband.

Of the two health behaviour predictors, smoking was associated with reduced 'given' and 'giving' support from the husband, whereas drinking behavior was not associated with any of the social support variables.

None of the marriage-related predictors differed between any pair of the two groups.

We then performed a series of regression analyses in order to control for the effects of interactions between predictor variables. Both the 'given' and 'giving' measures from the husband were used as a criterion variable, while the psychosocial variables identified as significantly associated with the husband's support in bivariate analyses so far were entered as predictor variables. The predictor variables were premenstrual irritability, past experience of delivery, past experience of termination of pregnancy, current age, own educational level, husband's educational level and smoking habit; they were entered into the equation with the stepwise method.

Different profiles of predictors for the two types of perceived support from the husband emerged (Table 5). Thus, a husband's poor 'given' support was predicted by the presence of premenstrual irritability, a lower level of the woman's own educational level, smoking habit and past experience of termination of pregnancy, while a husband's poor 'giving' support was predicted by current older age, smoking habit and past experience of delivery. Thus, women are more likely to perceive the husband as being helpful if they have no premenstrual symptoms, have a higher educational level, do not smoke or have never had a terminated pregnancy in the past. They are also more likely to perceive the husband as the recipient of their care if they are younger, do not smoke or have not yet had children.

DISCUSSION

The present study showed that pregnant Japanese women nominated the husband as the provider of support in approximately five of seven situations in which support is needed. The mother was nominated next, but was far behind the husband in this respect. Administering the same questionnaire to married Japanese women with a child or children, Ohinata[16] reported that the husband was the choice of a support resource among the majority of them.

Reviewing the literature, Power and Parke[25] postulated that an emotionally close relationship with the husband would be necessary for a pregnant woman during the transition period towards parenthood because of her heightened dependency. Our results are in line with their argument.

Tardy[15] categorized the concept of social support into: (i) direction (social support given or received); (ii) disposition (available/expected or enacted); (iii) description/evaluation (subjective satisfaction/quality or objective assessment/quantity); (iv) content (emotional, instrumental, informational or appraisal); and (v) network (family, close friend, neighbors, co-workers community or professional). In this framework, the present study examined the available/expected support and found that it could be categorized into: (i) received and providing (direction); and (ii) premarital, postmarital and husband support (network). This is consistent with our second hypothesis. The factorial structure of the direction and provider of support, together with different profiles of correlates of social support subcategories, may support the above categorization. However, women in different life stages may show a different factor structure of perceived social support. We

Table 5. Regression analyses on perceived social support by psychosocial predictors

Predictor variables	R^2	ΔR^2	Standardized β	P value
Criterion variable = husband 'given' support				
Own educational level	0.015	0.015	0.10	0.0009
Smoking	0.025	0.010	−0.07	0.0196
Premenstrual irritability	0.031	0.006	−0.08	0.0051
Past experience of TOP	0.037	0.006	−0.08	0.0079
Adjusted R^2	0.034			
Criterion variable = husband 'giving' support				
Past experience of delivery	0.016	0.016	−0.10	0.0013
Smoking	0.026	0.010	−0.11	0.0002
Age	0.032	0.006	−0.08	0.0089
Adjusted R^2	0.029			

TOP, termination of pregnancy.

plan to follow the subjects for several years to examine the temporal change of factorial structure of perceived social support among the same women. This may be reported in a separate report.

The two types of husband support, 'given' and 'giving', showed different patterns of psychosocial correlates. Poor 'given' support was associated with premenstrual irritability, a lower educational level of the woman and experience of a termination of pregnancy, while poor 'giving' support was associated with previous experience of childbirth and older age; they shared only smoking habit as a correlate of the support measures. The difference in the association with a variety of predictors provides partial support for the validity of the dichotomy of social support by the husband.

Previous investigations into the effects of the termination of pregnancy focused mostly on its immediate outcome, in terms of mental status.[26–29] The present study suggests that termination of pregnancy influences the way a woman will relate to the husband afterwards. Another possible interpretation is that a third variable (e.g. specific personality or coping style and marital disharmony) confounds the relationship between the arrangement of the abortion and reduced 'given' support from the husband. Further study may be needed to investigate the psychological and social determinants of the termination of pregnancy.

A lower educational level of the woman may be linked to reduced satisfaction with the husband's 'given' support through reduced self-esteem. It may also be followed by lack of self-confidence in choosing a 'dating' mate as a future partner who, when married, may give insufficient support, leading to the woman's dissatisfaction with the husband's 'given' support. Further analyses appeared difficult, because we did not use a measure of self-esteem, self-confidence or mastery. However, the link between educational level, self-esteem, selection of a partner, marital adjustment and satisfaction of spousal social support may be a challenge for future researchers.

Low 'giving' support of the husband was associated with previous obstetric delivery and older age. The woman is less likely to view the husband as the person who needs her or to whom she wants to devote herself if she has a child or children and she is older. In such a case, the woman's attention may have been shifted from the husband to the children.

The present study found that it was the husband that was the primary source of social support for pregnant women, but that finding cannot be generalized to other populations. As the husband's 'giving' support was negatively associated with older age and more children, we speculate that children may be the more important figures for established couples. It may be recommended that future research will pay more attention to the situation specificity of social support.

ACKNOWLEDGMENTS

This work was funded, in part, by a grant from the Toyota Foundation (86-II-081), a grant for Nervous and Mental Disorders from the Ministry of Health and Welfare, Japan (3A–6), a grant from Akaeda Medical Research Foundation and a grant-aid for Scientific Research of the Ministry of Health and Welfare, Japan (Assessment of the Mother and Child Health Care System). We acknowledge the support of Dr K. Sakakura and the staff of the Department of Obstetrics and Gynaecology, Kawasaki Municipal Hospital, Kawasaki, Japan.

REFERENCES

1. Greenblatt M, Becerra RM, Serafetinides EA. Social network and mental health: An overview. *Am. J. Psychiatry* 1982; **139**: 977–984.
2. Henderson S. Social relationships, adversity and neurosis: An analysis of prospective observations. *Br. J. Psychiatry* 1981; **138**: 391–398.
3. Henderson S, Byrne DG, Duncan-Jones P, Scott R, Adrock S. Social relationships, adversity and neurosis: A study of associations in a general population sample. *Br. J. Psychiatry* 1980; **136**: 574–583.
4. Henderson AS, Moran PAP. Social relationships during the onset and remission of neurotic symptoms: A prospective community study. *Br. J. Psychiatry* 1983; **143**: 467–472.
5. Alloway R, Bebbington P. The buffer theory of social support: A review of the literature. *Psychol. Med.* 1987; **17**: 91–108.
6. Goldberg DP. The detection of psychiatric illness by questionnaire: A technique for the identification and assessment of non-psychotic psychiatric illness. *Maudsley Monograph* No. 21, Oxford University Press, Oxford, 1972.
7. Bowlby J. The making and breaking of affectional bonds I. Aetiology and psychopathology in the light of attachment theory. *Br. J. Psychiatry* 1977; **130**: 201–210.
8. Bowlby J. Developmental psychiatry comes of age. *Am. J. Psychiatry* 1988; **145**: 1–10.
9. Flaherty JA, Richman JA. Effects of childhood relationships on the adult's capacity to form social supports. *Am. J. Psychiatry* 1986; **143**: 851–855.
10. Kitamura T, Shima S, Sugawara M, Toda MA. Psychological and social correlates of the onset of affective disorders among pregnant women. *Psychol. Med.* 1993; **23**: 967–975.
11. Kitamura T, Sugawara M, Aoki M, Shima S. Validity of the Japanese version of the GHQ among antenatal clinic attenders. *Psychol. Med.* 1989; **19**: 507–511.
12. Kitamura T, Shima S, Toda MA, Sugawara M. Comparison of different scoring systems for the Japanese version of the General Health Questionnaire. *Psychopathology* 1993; **26**: 108–112.
13. Kitamura T, Toda MA, Shima S, Sugawara M. Early loss of parents and early rearing experience among women with antenatal depression. *J. Psychosom. Obstet. Gynaecol.* 1994; **15**: 133–139.
14. Kitamura T, Shima S, Sugawara M, Toda MA. Temporal variation of validity of self-rating questionnaires: Repeated use of the General Health Questionnaire and Zung's Self-Relating Depression Scale among women during antenatal and postnatal periods. *Acta Psychiatr. Scand.* 1994; **90**: 446–450.
15. Tardy CH. Social support measurement. *Am. J. Comm. Psychol.* 1985; **13**: 187–202.
16. Ohinata M. *Bosei no Kenkyuu (A study on motherhood).* Kawashima, Tokyo, 1988.
17. Brown GW, Harris T, Copeland JR. Depression and loss. *Br. J. Psychiatry* 1977; **130**: 1–18.
18. Parker G, Tupling H, Brown LB. A parental bonding instrument. *Br. J. Med. Psychol.* 1979; **52**: 1–10.
19. Parker G. Parental 'affectionless control' as an antecedent to adult depression: A risk factor delineated. *Arch. Gen. Psychiatry* 1983; **40**: 956–960.
20. Kitamura T, Suzuki T. A validation study of the parental bonding instrument in a Japanese population. *Jpn. J. Psychiatry Neurol.* 1993; **47**: 29–36.
21. Sugawara K. An attempting to construct the self-consciousness scale for Japanese. *Jpn. J. Psychol.* 1984; **55**: 184–188 (in Japanese).
22. Feningstein A, Scheier MF, Buss AH. Public and private self-consciousness: Assessment and theory. *J. Consult. Clin. Psychol.* 1975; **43**: 522–527.

23. Paykel ES. Life events and early environment. In: Paykel ES (ed.). *Handbook of Affective Disorders*. Churchill Livingstone, Edinburgh, 1971; 146–161.
24. SPSS Inc. *SPSS User's Guide*, 2nd edn. SPSS Inc., Chicago, 1980.
25. Power TG, Parke RD. Social network factors and the transition to parenthood. *Sex Roles* 1984; **10**: 949–972.
26. Greer HS, Lal S, Lewis SC, Belsley EM, Beard RW. Psychosocial consequences of therapeutic abortion: King's termination study III. *Br. J. Psychiatry* 1976; **12**: 74–79.
27. Hamill E, Ingram IM. Psychiatric and social factors in the abortion decision. *Br. Med. J* 1974; **1**: 229–232.
28. Belsey EM, Greer HS, Lal S, Lewis SC, Beard RW. Predictive factors in emotional response to abortion: King's termination study IV. *Soc. Sci. Med.* 1977; **11**: 71–82.
29. Pare CMB, Raven H. Follow-up of patients referred for termination of pregnancy. *Lancet* 1979; **i**: 635–638.