

Stability of Index of Social Support Reciprocity among Friendships: Distinction between Perceived and Enacted Support

Yoshiharu FUKUOKA *¹

(Accepted November 27, 2017)

Key words: social support, reciprocity, perceived support, enacted support, friendship

Abstract

Previous research on reciprocity of social support has not clearly recognized the distinction between perceived support and enacted support. This study investigated the current availability and provision of support, or perceived support, and support enacted (received and given), or the actual support exchange, during the past month in two surveys. Participants were Japanese college students in the same groups of Fukuoka's (2003) original survey. The first survey of this study was administered 8 weeks later and the second survey of this study was done 12 weeks later from the original one. Analyses were conducted on each of the data and longitudinally. Overall, reciprocity of perceived support significantly influenced the interpersonal affect. Enacted support reciprocity had a significant influence on the interpersonal affect as perceived support reciprocity only when the recipients' experience of stressful situations as support needs were taken into consideration. The most stable results were taken from the analyses on the variables of perceived support. The second most stable ones were taken from the variables of the analyses on the variables of enacted support with the consideration of the need of support. These results were discussed with regard to the importance of the distinction between perceived and enacted support within the framework of support reciprocity.

1. Introduction

1.1 Background

There is a recent trend of approaching social support studies by considering not only the perspective of recipients but also that of proactive support providers. Equity theory is often employed by emphasizing the balance between receiving and giving support. In other words, it has been argued that parties in equitable relationships produce positive affective states, while those in inequitable relationships produce negative ones, affecting mental health as a consequence (e.g., Buunk et al.¹⁾ ; Rook²⁾).

The differences between the availability and provision of perceived support and actual enacted support both received and given³⁾ have not been taken into consideration in earlier studies⁴⁾. For instance, participants were directly asked to rate whether support was "reciprocal or not"^{1,5)}, or one point was

*¹ Department of Clinical Psychology, Faculty of Health and Welfare,
Kawasaki University of Medical Welfare, Kurashiki, 701-0193, Japan
E-Mail: fukuoka@mw.kawasaki-m.ac.jp

given to those who receive some kind of support and zero points to those who do not²⁾. In another study, retrospective reports on giving and receiving support were conducted at intervals of a few months⁶⁾. In such cases, the levels of the index appear to be closer to perceived support compared to individual cases.

In reference to the above, an important issue that needs to be addressed is whether enacted support is given and received according to recipients' potential needs (situations in which support is required in some way or other). That is, in giving and receiving enacted support, givers need to grasp recipients' needs (or else, support turns out to be inadequate). If support is not given or received in spite of the presence of needs, recipients may be unable to receive anticipated support in some cases, possibly producing negative impacts that are distinct from those generated from situations in which giving and receiving support are not conducted because there is no need.

In view of the above, Fukuoka⁷⁾ examined this issue by including two ideas. In a retrospective report, giving and receiving enacted support were measured during the preceding month with one of the major indices, ISSB (Inventory of Socially Supportive Behaviors)⁸⁾. Based on the above, giving and receiving enacted support was analyzed by taking "the presence or absence of needs" into consideration compared to the conventional methods of measurement in which such needs are not taken into consideration. In taking "the presence or absence of needs" into consideration, this study focused on conventional methods of measuring perceived support by asking whether s/he can get support from people around him/her (example: cheer up, listen to his/her problem) in any situation (example: became depressed, having troubles). Participants were first asked whether s/he experienced any situations described in the first section and, if applicable, asked whether s/he received support from those around him/her. Moreover, in giving scores to support, zero points were given to cases in which participants did not experience any situations (thus, failing to receive support in such cases) and negative points were given to cases in which support was not given in spite of the presence of needs, reflecting negative impacts of not receiving anticipated support. The study compared "scores for enacted support with needs taken into consideration," conventional scores, and the impact of reciprocity in rendering perceived support. As a result, the anticipated differences in the affective state were observed in reciprocity of perceived support and much like perceived support, enacted support scores with needs taken into consideration produced an effect of reciprocity.

1.2 Perspectives and purposes of this research

Fukuoka's finding⁷⁾ suggests that in addressing the issue of reciprocity in social support, it is necessary to take account of the differences between perceived and enacted support and "the presence or absence of needs" in reference to giving and receiving enacted support. However, what came from the study is the result of cross-sectional studies at a single point in time. Further, there are no subsequent studies on support reciprocity through such perspectives. For instance, while using the same items as with Fukuoka^{4,7)}, Uchida and Hashimoto⁹⁾ simply asked about experiences in the preceding month without consideration for recipients' needs in relation to enacted support.

The purpose of this study is to analyze research data containing much the same details as Fukuoka⁷⁾ by sampling the same group at intervals of approximately one month and three months and examine the following two points.

Firstly, to analyze each point in time, the paper examines the repeatability of the results in reference to support reciprocity. It can be assumed that there is high correlation between receiving and giving perceived support while correlation between receiving and giving enacted support is higher with recipients' needs taken into consideration than without. Further, it can be also assumed that the affective state is associated with perceived support and enacted support if needs are taken into consideration.

Secondly, the paper, in view of the correlation between indicators at different points in time, examines the stability of the effect of the relation between support reciprocity and the affective state. Receiving and giving perceived support, which is less dependent on situations, is expected to show higher stability. In other words, the relevance among each indicator of receiving and giving support is higher in perceived

support and perceived support shares more similarity in terms of reciprocity grouping at different points in time. Hence, it is considered that the affective state is likely to be easily influenced later by reciprocity in a certain point in time.

2. Methods

2.1 Participants

The survey was conducted twice, once in May and once in July. In May, 302 university students aged between 18 and 24 (153 men and 149 women) were sampled, of which 225 (114 men and 111 women) also responded to Fukuoka's survey⁷⁾ (hereafter referred to as "April survey"). In a similar manner, in July, 375 university students aged between 18 and 24 (185 men and 190 women) were sampled, of which 224 also responded to the May survey at intervals of eight weeks while 250 responded to the April survey at intervals of 12 weeks.

2.2 Materials

A survey slip describing the details below was used for the May and July surveys. As with Fukuoka's April survey⁷⁾, it contained the same details except for a measure of feelings; which was added.

2.2.1 Social support

In examining giving and receiving social support between close same-gender friends, the availability and provision of perceived support and enacted support received and given in the preceding month were measured. Among nine items used in every survey, seven items were analyzed with consideration of the internal consistency. These items included "cheer up when feeling depressed," "distract oneself by joking when puzzled over something," "put heads together when having no clue," "listen to him/her when having problems," "give advice when a decision needs to be made," "cheer up when feeling anxious," and "do something together to get refreshed." Perceived and enacted support (receiving/giving) were measured by changing endings of a word or alternatives.

(1) Perceived support (possibilities of receiving or giving support)

The participants were asked to respond to the following at the end of each item; "he/she may volunteer to do..." in measuring availability and "I may be able to do something" in measuring provision. A rating scale consisting of four alternatives, 1 (*No*) to 4 (*Yes*) was used for responding. The mean value of rating seven items was used as an index. Every Cronbach's α coefficient of availability and provision was over 0.80.

(2) Enacted support (actual support that was received or given)

By isolating the first part of each item (up until "when ..."), the survey asked about the presence or absence of recipients' needs in the preceding month. For instance, following the sentence of "when I am puzzled over something...", the participants were asked to choose "Yes" or "No." If "Yes" was chosen, they were asked to respond to the degree of receiving and giving support by way of a rating scale of four (1. No to 4. Yes).

Two methods were used for giving scores. One method was by taking recipients' needs into consideration, to allocate -1, 0, 1, 2 points to each response given to a rating scale of four, then the sum of these points were divided by the number of needs (hereafter referred to as "enacted support (new score)"). Negative values were given when support was received or given without taking account of recipients' needs because such situations as "my friend did nothing when I was in trouble," or "I could not do anything when my friend was in trouble," were considered to produce negative impacts on the psychology of the participant concerned. In such cases, when the number of needs was zero, zero points were given. The other method was in line with conventional methods of measurement, in which zero points were given when needs were absent, or support was not received or given in spite of the presence of needs, while 1 to 3 points were given for the rest, then dividing by the number of items to compute mean values (hereafter referred to as "enacted support (old score)").

2.2.2 Affective state

To ascertain the affective state in relation to receiving and giving support, the survey asked about

satisfaction (four items such as delighted, happy), indebtedness (three items such as ashamed and feeling sorry), irritation (three items such as irritated and offended), and burden (two items such as feel burdened) in a rating scale of four (1. Not applicable to 4. Applicable) and computed rating mean values respectively. These items were selected from 16 items after partially amending studies by Moroi¹⁰⁾ and Fukuoka^{4,11)} based on a correlation among items and the result of factor analysis with principal factor solution. Every Cronbach's α coefficient was over 0.75.

Moreover, the survey also measured fulfillment and depression as part of the feelings in the more general sense. To be more precise, by extracting eight items from a measure of fulfillment by Ohno¹²⁾ and seven items from a measure of depression in the health questionnaire THI (Todai Health Index)¹³⁾, the participants were asked to respond to a rating scale of four. Items deemed inappropriate were omitted in light of an internal consistency in doing factor analysis with principal factor solution. Seven items for fulfillment and four items for depression were extracted and respective rating mean values were used as an index.

2.3 Procedures

In mid-May, at intervals of four weeks after the April survey by Fukuoka⁷⁾ and a subsequent eight weeks of intervals in early July, the students were given survey slips and explanations at multiple psychology related classes as was the case with the survey by Fukuoka⁷⁾. They were asked to submit responses within two weeks in every survey including the April one.

2.4 Ethical considerations

All the surveys were conducted anonymously. Further, the participants were informed by opening remarks in survey slips as well as verbally that their cooperation to the survey would be on a voluntary basis, leaving responses half way would not be to their disadvantage, and the result would be used solely for research purposes, not for rating individuals. In conducting the surveys, approval was obtained beforehand from departments to which researchers belong. To match up responses at multiple survey points, the respondents were asked to fill out each survey slip with ID numbers that were only identifiable by them so that actual respondents would not be identified. The respondents with the same ID numbers were deemed as the same persons.

2.5 Analyses

To confirm whether the same results would be obtained as with earlier studies including Fukuoka⁷⁾, the paper examined correspondence relations between receiving and giving support by comparing mean values and index correlation. The former corresponds to correspondence relations between receiving and giving at the group level and the latter to those at the individual level. In addition, the study compared affective states among three groupings by the degree of discrepancies between receiving and giving (over-benefit (receiving>giving), reciprocal (availability \approx provision), under-benefit (receiving<giving)).

Further, to study the temporal stability of the index of support reciprocity, the paper examined relations among support indicators at three intervals; one month (April-May), two months (May-July), and three months (April-July). To be precise, the paper examines the following in order: correlation of support indices between the points of the survey time, correspondence relations among three groupings by the degree of discrepancies between support receiving and giving, and whether three groupings of support reciprocity would affect the affective state afterwards.

3. Results

3.1 Confirmation of findings of previous studies

3.1.1 Correspondence between receiving and giving support

Table 1 indicates the mean values by gender and correlation coefficients of the support index obtained in the May and July surveys. The mean values of both men and women (the main effects by gender) were all

significant and women scored higher.

In examining quantitative correspondence relations, the survey conducted a two-way ANOVA on support (receiving/giving) x gender (male/female) for perceived support, enacted support (old score), and enacted support (new score). The results were basically the same in May and in July. There were interactions in perceived support, in which only males had higher availability than provision. There were no main effects of support or interactions in enacted support (new score) whereas only the main effects of support were present in enacted support (old score; receiving>giving).

In terms of correlation, males and females produced similar results, in which perceived support had a significantly high correlation between receiving and giving while enacted support had a relatively low correlation. Furthermore, the correlation between perceived support and enacted support tended to be slightly higher for enacted support (new score) than for enacted support (old score). Additionally, the correlations between availability and the amount of given support, as well as the possibility of provision and the amount of received support were nearly half of the correlation between receiving and giving support on the perceived level.

3.1.2 Differences in affective states due to support reciprocity

With differences in significance of mean values taken into consideration, each index by gender in both the May and July surveys was standardized and discrepancy scores for receiving/giving were computed in terms of perceived support, enacted support (old score), and enacted support (new score). In line with the same baseline as with Fukuoka⁷, three groupings of reciprocity were set ("over-benefit (receiving>giving)", "reciprocal (availability≈provision)", "under-benefit (receiving<giving)"). A two-way ANOVA was conducted on reciprocity (three groupings) x gender, with the affective state as the dependent variable at each point in time. Results are shown in Table 2. It can be seen that almost all the main effects of reciprocity in perceived and enacted support (new score) were significant or had a significant trend and reciprocal groupings showed desirable affective states in all aspects. In contrast, enacted support (old score) did not produce main effects in most analyses. Though a small part of the main effects was significant, under-benefit or over-benefit groups were more desirable. All interactions were not significant in these analyses.

Table 1 Means, standard deviations, and correlation coefficients of social support variables

Variables			I	II	III	IV	V	VI	Male		
									Mean	SD	
May Male: n=153	Perceived support	availability	I	—	.73	.50	.25	.29	.22	3.04	0.66
		provision	II	.84	—	.42	.39	.26	.24	3.13	0.61
Female: n=149	Enacted support (new score) ⁴⁾	receiving	III	.60	.51	—	.54	.66	.48	0.85	0.87
		giving	IV	.44	.43	.59	—	.39	.71	0.79	0.81
	Enacted support (old score)	receiving	V	.50	.44	.80	.49	—	.63	1.15	0.80
		giving	VI	.38	.37	.60	.69	.68	—	0.90	0.88
Female		Mean		3.45	3.39	1.20	1.22	1.61	1.34	Male	
		SD		0.57	0.55	0.73	0.68	0.88	0.81	Mean	SD
July Male: n=185	Perceived support	availability	I	—	.72	.54	.46	.39	.38	3.14	0.62
		provision	II	.70	—	.50	.44	.37	.33	3.23	0.62
Female: n=190	Enacted support (new score) ⁴⁾	receiving	III	.49	.55	—	.58	.72	.52	0.87	0.85
		giving	IV	.36	.49	.51	—	.55	.79	0.90	0.77
	Enacted support (old score)	receiving	V	.41	.46	.67	.33	—	.66	1.20	0.89
		giving	VI	.32	.37	.44	.57	.59	—	1.09	0.93
Female		Mean		3.51	3.43	1.34	1.33	1.67	1.48		
		SD		0.53	0.53	0.73	0.65	0.94	0.92		

Upper right: male, lower left: female

All of correlation coefficients are significant ($p < .01$).

Half-tone cells: correlations within the same scoring variables

Enacted support (new score): with the recipients' needs taken into consideration

Table 2 Affective states by three groupings of reciprocity due to discrepancies between receiving-giving support

Support	Groups	Reciprocity	n	Satisfaction		Indebtedness		Irritation		Burden		Fulfillment		Depression	
				Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
May	Perceived support	receiving < giving (underbenefit)	79	3.02	0.64	1.92	0.75	1.67	0.68	1.51	0.60	2.53	0.57	2.83	0.67
		availability ≈ provision (reciprocal)	149	3.43	0.54	1.71	0.67	1.44	0.55	1.47	0.53	2.70	0.64	2.53	0.62
		receiving > giving (overbenefit)	74	3.13	0.79	1.86	0.76	1.55	0.63	1.56	0.63	2.45	0.58	2.79	0.70
Enacted support (new score)		receiving < giving (underbenefit)	113	3.04	0.74	1.88	0.72	1.61	0.66	1.57	0.62	2.52	0.63	2.73	0.63
		availability ≈ provision (reciprocal)	98	3.50	0.51	1.63	0.62	1.41	0.57	1.38	0.50	2.81	0.60	2.53	0.67
		receiving > giving (overbenefit)	91	3.24	0.61	1.88	0.78	1.54	0.58	1.54	0.66	2.46	0.56	2.76	0.70
Enacted support (old score)		receiving < giving (underbenefit)	101	3.18	0.69	1.75	0.66	1.58	0.66	1.47	0.57	2.81	0.60	2.61	0.67
		availability ≈ provision (reciprocal)	130	3.30	0.64	1.77	0.72	1.50	0.57	1.55	0.61	2.53	0.59	2.63	0.66
		receiving > giving (overbenefit)	71	3.26	0.65	1.94	0.78	1.51	0.62	1.46	0.63	2.41	0.61	2.84	0.65
July	Perceived support	receiving < giving (underbenefit)	88	3.12	0.71	1.95	0.76	1.77	0.70	1.70	0.74	2.76	0.66	2.69	0.73
		availability ≈ provision (reciprocal)	200	3.39	0.61	1.81	0.72	1.53	0.68	1.49	0.66	2.88	0.62	2.72	0.68
		receiving > giving (overbenefit)	87	3.28	0.70	2.13	0.86	1.59	0.64	1.64	0.78	2.76	0.56	2.84	0.75
Enacted support (new score)		receiving < giving (underbenefit)	120	3.06	0.71	1.94	0.74	1.71	0.70	1.63	0.73	2.74	0.63	2.84	0.69
		availability ≈ provision (reciprocal)	150	3.47	0.60	1.90	0.79	1.53	0.67	1.56	0.72	2.88	0.61	2.65	0.73
		receiving > giving (overbenefit)	105	3.33	0.63	1.92	0.77	1.57	0.65	1.52	0.67	2.83	0.60	2.75	0.69
Enacted support (old score)		receiving < giving (underbenefit)	112	3.21	0.67	1.84	0.72	1.60	0.66	1.57	0.73	2.86	0.61	2.61	0.69
		availability ≈ provision (reciprocal)	160	3.26	0.69	1.94	0.76	1.62	0.69	1.64	0.74	2.79	0.63	2.75	0.73
		receiving > giving (overbenefit)	103	3.45	0.58	1.96	0.84	1.56	0.68	1.47	0.63	2.85	0.61	2.86	0.69

Enacted support (new score): with the recipients' needs taken into consideration

Heavy line: significant ($p < .05$); Fine line: marginally significant ($p < .10$)

Table 3 Correlations of support index between different points in time

Variables		Male						Female							
		I	II	III	IV	V	VI	I	II	III	IV	V	VI		
April - May Interval:	Perceived support	availability	I	.50	.50	.31	.14	.33	.23	.62	.41	.52	.29	.40	.23
		provision	II	.41	.45	.32	.21	.28	.23	.50	.47	.42	.36	.34	.28
One month	Enacted support (new score) ³⁾	receiving	III	.45	.46	.44	.30	.37	.26	.40	.22	.38	.36	.37	.34
		giving	IV	.27	.40	.38	.34	.34	.34	.40	.30	.37	.50	.34	.49
	Enacted support (old score)	receiving	V	.25	.27	.36	.27	.51	.37	.35	.21	.28	.38	.51	.48
		giving	VI	.32	.33	.37	.26	.51	.49	.26	.31	.29	.46	.45	.57
May - July Interval:	Perceived support	availability	I	.68	.60	.44	.28	.30	.26	.59	.50	.41	.29	.39	.24
		provision	II	.60	.69	.38	.32	.24	.24	.55	.56	.43	.33	.39	.26
Two months	Enacted support (new score) ³⁾	receiving	III	.36	.45	.50	.35	.39	.33	.38	.32	.44	.42	.40	.35
		giving	IV	.30	.38	.41	.41	.48	.53	.26	.25	.46	.58	.39	.48
	Enacted support (old score)	receiving	V	.22	.27	.37	.24	.54	.38	.30	.29	.31	.26	.51	.39
		giving	VI	.25	.31	.33	.31	.55	.55	.27	.27	.38	.36	.50	.58
April - July Interval:	Perceived support	availability	I	.60	.53	.42	.16	.34	.16	.57	.34	.47	.33	.36	.28
		provision	II	.47	.58	.41	.19	.28	.14	.47	.44	.54	.36	.38	.26
Three months	Enacted support (new score) ³⁾	receiving	III	.33	.35	.43	.27	.39	.23	.30	.19	.34	.27	.29	.33
		giving	IV	.29	.33	.35	.19	.47	.30	.26	.21	.29	.48	.16	.35
	Enacted support (old score)	receiving	V	.28	.26	.34	.20	.44	.25	.28	.20	.29	.19	.41	.35
		giving	VI	.24	.25	.28	.14	.41	.30	.29	.18	.28	.38	.34	.55

Enacted support (new score): with the recipients' needs taken into consideration

Half-tone cells: correlations within the same scoring variables

3.2 Stability of index of social support reciprocity

3.2.1 Stability of support index

Correlation coefficients among support indicators were computed by gender at intervals of one month (April-May), two months (May-July), and three months (April-July). As shown in Table 3, perceived support

had the highest correlation between the same indicators, followed by enacted support (old score). Whereas enacted support (new score) had a relatively low correlation. In terms of correlations between perceived support with enacted support (old score) and with enacted support (new score) separately, enacted support (new score) had a higher correlation with perceived support scores.

3.2.2 Stability of index in relation to discrepancies in support receiving and giving

Among the three groups of reciprocity at each point of time, the degree of correspondence was examined (for instance, whether the participants that were deemed "reciprocal" in the April survey would be equally categorized as "reciprocal" in the July survey). Table 4 shows the cross-tabulation table with co-index groupings at each interval, chi-square values and Cramer's V. As can be seen in the table, groups of reciprocal perceived support scored the highest values at all intervals of one month, two months, and three months.

3.3.3 Stability of impacts of support reciprocity on affective state

The study examined impacts of support reciprocity at intervals of one month (April-May), two months (May-July), and three months (April-July). At the interval of one month, reciprocity in April was assigned as the independent variable whereas the affective state in May was the dependent variable. At an interval of two months, reciprocity in May was assigned as the independent variable whereas the affective state in July was the dependent variable. At an interval of three months, reciprocity in April was assigned as the independent variable whereas the affective state in July was the dependent variable. At each interval, a two-way ANOVA was conducted on the three groupings of reciprocity: ("over-benefit (receiving>giving)" "reciprocal (availability≈provision)" "under-benefit (receiving<giving)") by gender. As shown in Table 5, the main effects of reciprocity were significant in numerous indicators in relation to the affective state in terms of perceived support and enacted support (new score). However, reciprocity of enacted support (old score) had a significant tendency in one analysis (indebtedness at intervals of two months), whereas the main effects were not significant in the rest of the analyses. Moreover, none of the interactions were significant.

4. Discussion

This study, similar to earlier studies⁷, focused on differences in measuring social support between perceived support, i.e., availability and provision, and enacted support, i.e., actual support received and given support³ and analyzed support reciprocity at both levels. Especially, recipients' potential needs were taken

Table 4 Correspondence relation of support reciprocity grouping at different points in time

	Groups	Reciprocity	Perceived support			Enacted support (new score)			Enacted support (old score)		
			under-benefit	reciprocal	over-benefit	under-benefit	reciprocal	over-benefit	under-benefit	reciprocal	over-benefit
April - May Interval: One month	receiving < giving	(underbenefit)	33	31	12	37	18	16	28	33	12
	availability ≈ provision	(reciprocal)	13	57	9	25	29	23	32	33	19
	receiving > giving	(overbenefit)	13	27	30	20	25	32	16	28	24
	Chi-square value		42.20			13.53			8.67		
	Cramer's V		0.31			0.17			0.14		
May - July Interval: Two months	receiving < giving	(underbenefit)	21	29	8	37	28	22	31	28	16
	availability ≈ provision	(reciprocal)	30	66	17	22	35	12	31	54	16
	receiving > giving	(overbenefit)	6	26	21	18	28	22	8	20	20
	Chi-square value		20.01			9.38			17.90		
	Cramer's V		0.21			0.15			0.20		
April - July Interval: Three months	receiving < giving	(underbenefit)	35	36	12	36	24	21	31	35	14
	availability ≈ provision	(reciprocal)	16	58	18	28	42	16	31	44	20
	receiving > giving	(overbenefit)	12	36	27	18	36	29	19	26	30
	Chi-square value		26.49			14.73			12.49		
	Cramer's V		0.23			0.17			0.16		

Enacted support (new score): with the recipients' needs taken into consideration

Table 5 Comparison of affective states at subsequent points in time due to support reciprocity

	Support	Groups	Reciprocity	n	Satisfaction		Indebtedness		Irritation		Burden		Fulfillment		Depression	
					Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
April - May Interval: One month	Perceived support	receiving < giving	(underbenefit)	76	3.12	0.63	1.87	0.75	1.60	0.58	1.48	0.55	2.64	0.58	2.71	0.55
		availability ≈ provision	(reciprocal)	79	3.47	0.50	1.65	0.64	1.44	0.55	1.38	0.52	2.77	0.64	2.47	0.66
		receiving > giving	(overbenefit)	70	3.14	0.73	1.90	0.76	1.52	0.62	1.52	0.62	2.37	0.63	2.90	0.66
		receiving < giving	(underbenefit)	71	3.03	0.72	1.75	0.73	1.61	0.64	1.51	0.62	2.58	0.64	2.87	0.64
		availability ≈ provision	(reciprocal)	77	3.40	0.59	1.84	0.71	1.48	0.57	1.38	0.51	2.59	0.65	2.54	0.65
		receiving > giving	(overbenefit)	77	3.31	0.58	1.81	0.73	1.48	0.54	1.48	0.56	2.63	0.63	2.66	0.62
	Enacted support (new score)	receiving < giving	(underbenefit)	73	3.23	0.66	1.67	0.66	1.53	0.63	1.40	0.56	2.62	0.72	2.69	0.71
		availability ≈ provision	(reciprocal)	84	3.17	0.69	1.86	0.75	1.52	0.57	1.51	0.56	2.56	0.63	2.64	0.63
		receiving > giving	(overbenefit)	68	3.38	0.54	1.87	0.74	1.51	0.56	1.46	0.56	2.64	0.55	2.74	0.59
		receiving < giving	(underbenefit)	58	3.18	0.64	2.05	0.77	1.75	0.62	1.71	0.71	2.86	0.65	2.86	0.65
		availability ≈ provision	(reciprocal)	113	3.38	0.66	1.78	0.68	1.48	0.61	1.47	0.62	2.87	0.63	2.65	0.67
		receiving > giving	(overbenefit)	53	3.06	0.71	2.09	0.76	1.77	0.74	1.73	0.76	2.64	0.54	2.86	0.67
May - July Interval: Two months	Perceived support	receiving < giving	(underbenefit)	87	3.06	0.75	1.91	0.70	1.69	0.64	1.66	0.68	2.79	0.66	2.78	0.70
		availability ≈ provision	(reciprocal)	69	3.41	0.62	1.75	0.75	1.53	0.65	1.48	0.71	2.95	0.63	2.66	0.60
		receiving > giving	(overbenefit)	68	3.34	0.58	2.12	0.73	1.62	0.68	1.62	0.68	2.71	0.54	2.83	0.70
		receiving < giving	(underbenefit)	75	3.15	0.74	1.85	0.71	1.67	0.64	1.64	0.72	2.99	0.65	2.73	0.71
		availability ≈ provision	(reciprocal)	101	3.29	0.63	1.90	0.77	1.62	0.64	1.62	0.68	2.72	0.58	2.71	0.63
		receiving > giving	(overbenefit)	48	3.33	0.67	2.08	0.69	1.53	0.71	1.46	0.64	2.75	0.60	2.89	0.69
	Enacted support (old score)	receiving < giving	(underbenefit)	83	3.14	0.61	2.09	0.77	1.65	0.59	1.66	0.73	2.70	0.56	2.76	0.65
		availability ≈ provision	(reciprocal)	92	3.49	0.54	1.74	0.72	1.54	0.65	1.52	0.68	2.98	0.59	2.65	0.68
		receiving > giving	(overbenefit)	75	3.22	0.82	1.98	0.82	1.67	0.82	1.63	0.79	2.69	0.64	2.85	0.72
		receiving < giving	(underbenefit)	81	3.10	0.69	1.95	0.81	1.78	0.69	1.83	0.84	2.74	0.62	2.96	0.65
		availability ≈ provision	(reciprocal)	86	3.47	0.58	1.83	0.72	1.47	0.63	1.44	0.59	2.88	0.56	2.59	0.66
		receiving > giving	(overbenefit)	83	3.30	0.71	2.01	0.80	1.61	0.72	1.54	0.68	2.79	0.65	2.69	0.69
Enacted support (old score)	receiving < giving	(underbenefit)	80	3.26	0.64	1.83	0.74	1.61	0.63	1.63	0.77	2.79	0.66	2.66	0.66	
	availability ≈ provision	(reciprocal)	95	3.25	0.72	1.93	0.74	1.66	0.72	1.67	0.77	2.81	0.63	2.82	0.73	
	receiving > giving	(overbenefit)	75	3.39	0.63	2.02	0.86	1.57	0.71	1.47	0.61	2.80	0.52	2.74	0.65	

Enacted support (new score): with the recipients' needs taken into consideration

Heavy line: significant ($p < .05$); Fine line: marginally significant ($p < .10$)

into consideration in measuring enacted support. By using research data with similar details as Fukuoka⁷, conducted at intervals of one month and three months, the study examined the stability of the index of support reciprocity and the stability of its impact.

The results of the analyses largely supported the hypotheses of this study.

In the analysis at each point of time in the May and July surveys, perceived support had a high correlation between receiving and giving support. When comparing enacted support (old score) with no consideration for needs and enacted support (new score) with needs taken into consideration, there were no significant differences in correlation between receiving and giving support. However, the latter revealed a higher correlation with perceived support indicators. Furthermore, in comparing the affective state among three groupings of reciprocity, almost all analyses on perceived support and enacted support (new score) indicated the main effects in the direction of "reciprocal" groups being desirable, whereas such results were not obtained for enacted support (old score).

With regard to correlations among indicators at different points of time, the correlation of variables related to receiving and giving support between points of time was high for perceived support and low for enacted support at every interval of one month, two months, and three months, whereas enacted support (new score) with needs taken into consideration had relatively higher correlations with receiving and giving perceived support. Perceived support shared more similarity in terms of reciprocity groupings at different

points of time. In terms of the differences in affective states at a later point of time affected by reciprocity in the preceding point of time, perceived support and enacted support (new score) offered numerous benefits of reciprocity, while such effects were hardly recognized in enacted support (old score) with no consideration for needs.

The results of the study, similar to Fukuoka⁷⁾, indicated that reciprocity of social support is often recognized in perceived support, having a significant relationship with affective states. Moreover, when examining reciprocity of enacted support, the recipients' potential needs should be taken into consideration. By conducting surveys at multiple points of time, the study indicated that possibilities of receiving and providing support among close friends highly corresponded to each other at least at intervals of a few months and that the degree of reciprocity was associated with the affective state. Furthermore, actual support was received and given among close friends to people with potential support needs. The study indicated that how to respond to receiving and giving would affect affective states. Uchida and Hashimoto⁹⁾ in their recent study on reciprocity of social support in Japan, focusing on the mental health of university students reported that reciprocity of perceived support among students is related to various indicators of social skills and mental health, whereas reciprocity of enacted support had no relevance to them. The findings of this study are similar to such studies in that the results indicate the significance of reciprocity in receiving and giving perceived support. Nevertheless, the study results do not necessarily indicate that there is no relationship between reciprocity of enacted support and the mental health of university students. As reported in earlier studies, receiving or giving support when experiencing stressful events is associated with a person's mood state^{14,15)}. In dealing with support reciprocity, it might be necessary to give due consideration to situations both recipients and givers have been experiencing, and not only consider perceived support.

The study has limitations in that only friendships among university students were investigated and the same samples were used as with Fukuoka⁷⁾, resulting in problems when generalizing these findings. Hence, it is desirable to conduct further studies. Moreover, as pointed out by Morimoto¹⁶⁾, the method of measuring support reciprocity used in this study includes both of the cases in which the quantity of received and provided support is large and in which it is small. This study did not deal with the differences between the two cases. In addition, by conducting longitudinal studies, the case in which perception of reciprocity based on availability and provision of perceived support is not realized later, receiving and giving enacted support (for instance, receiving and giving support turned out later to be non-reciprocal between specific friends who were considered to have reciprocal relations), should be examined. These are some examples of issues that should be addressed in future studies. Further studies would be desirable.

Conflict of interest

The authors declare that they have no conflict of interest regarding the findings of this study.

Acknowledgments

I received cooperation from professors Tsukasa Hashimoto, Naoto Suzuki, Masao Yogo, and Kenjiro Aoyama in conducting the study (all from Doshisha University). I also would like to express my gratitude for all the students who collaborated in the repeated study.

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