



## EFFECTIVENESS OF DISCHARGE PLAN ON SELF CARE PRACTICES AMONG POST ANGIOPLASTY PATIENTS: QUASI EXPERIMENTAL TIME SERIES STUDY

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### Abstract

**Background:** Coronary artery disease is caused by deposition of cholesterol and fats in the inner lining of coronary arteries which leads to blockage of it and obstruct the flow of blood to heart muscles which lead to ischemia and necrosis of muscles of the heart. Angioplasty is one of the interventions for management of coronary artery disease.

**Objectives:** The objective of the study was to prepare discharge plan for post angioplasty patients and give them so they can take care of themselves at home and to evaluate its effectiveness on self-care practices of post angioplasty patient.

**Methodology:** Quantitative research approach with quasi experimental time series design was adopted; total 52 post angioplasty patients were selected by using purposive sampling technique. Data was collected by using demographic Performa, self-care practice checklist. Discharge summary containing instructions regarding home care was given at the time of discharge from the hospital.

**Results:** Results showed that Discharge plan was effective in improving the self-care practices of post angioplasty patients in all the domains of medication, diet, exercise, rest and sleep, stress management and smoking and alcohol. ( $F = 60.360$ ,  $P < 0.000$ ).

**Conclusion:** This study concluded that discharge plan was effective in enhancing self-care practices of post angioplasty patients in the areas of medication, diet, exercise, stress management rest and sleep.

**Keywords:** Discharge plan, Self-care practices, Post angioplasty patients.

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## INTRODUCTION

“The First wealth is health.”

Ralph Waldo Emerson

Coronary artery disease is caused by deposition of cholesterol and fats in the inner lining of coronary arteries which leads to blockage of it and obstruct the flow of blood to heart muscles which lead to ischemia and necrosis of muscles of the heart .(Whelton, P. K., et.al. 2018.)

In India Non-communicable diseases, including cardiovascular diseases (CVDs), are estimated to account for 63% of total deaths that occurred in adult population. CVDs lead to 26% of these deaths. The causes of cardiac disease in Indian adults are smoking tobacco, alcohol consumption around (21.1%) persons have hypertension. (Mendis S, et.al.2011, Thomas, H., et.al 2018, WHO.2014).

**Krishan M N et al (2016)** conducted study on incidences of coronary artery disease and its causes in Southern part of India, Kerala. 5167 adults were recruited using multistage cluster sampling method. Analysis of data revealed that coronary artery disease was prevalent in 12.5% sample, out of which male were 9.8%, females 14.3 %, 17.5% reported being physically inactive, 18% had family history of CAD, 59% were obese, 57% had abdominal obesity, 28% reported hypertension, 15% had diabetes, 52% reported high total cholesterol, 28% males reported that they were smoking presently.<sup>25</sup>

Jafari F, et. al (2016) conducted Randomized Controlled Clinical Trial, on effects of program on alteration on pattern of living on the awareness and attitude and ways in which they lived among patients who had angioplasty. Result revealed that the intervention was effective in increasing the knowledge, attitude and practice of patients with angioplasty.

## OBJECTIVES OF THE STUDY

1. To assess the effectiveness of discharge plan on self-care practices of post angioplasty patient.
2. To prepare and validate discharge plan for post angioplasty patients and give them.

## LITERATURE REVIEW:

### Self-care practices

**Kurane S C, Dani P, Kurane C (2015)** conducted descriptive study on knowledge and practice of cardiac patients about cardiac rehabilitation. Hundred patients were selected by non –probability purposive sampling method. Results revealed that 38% of the patients had

average knowledge, 50.6% patients knew about meaning of cardiac rehabilitation, majority (83.5%) of the patients had knowledge about diet, and 57.5% had knowledge about disease and risk factors. Majority (97%) of patients had quit smoking after diagnosis, Majority (93%) of patients were taking dietary precautions, 86%. Were monitoring their blood pressure on regular basis, 76% were checking their blood sugar regularly, 54% were monitoring their body weight regularly, 45% were getting blood cholesterol level checked. 14% were doing exercises, 12% patients were practicing relaxation techniques. The study found that in spite of good knowledge score the practices were lacking.<sup>26</sup>

**Bilal M, Haseeb A, Siraj S et.al (2015)** conducted study to assess the awareness and self-care practices of cardiac hypertensive patients. Six hundred sixty-six samples were recruited by Convenience sampling method. Result showed that 81.8% are not familiar that high blood pressure is defined as hypertension, 97.1% of patient did not know the systolic blood pressure was peak measurement and appropriately 25% knew about normal systolic blood pressure should be not more than 140mmhg. Only 7.4% of the hypertensive patients followed their physician formerly or two times in a month commonly risk factor in the participants are identified. Result showed that there was improvement in the self-care practices of the patients.<sup>27</sup>

**Moattari M, Adib F, Kojuri J, Tabatabaee S H R (2014)** conducted study to evaluate the effects of intervention on management of chest pain by cardiac patients themselves on the quality of life, anxiety and depression in 80 patients who had angioplasty. Results revealed that mean anxiety scores after intervention was greater than before intervention in experimental group compared to control group with P value of less than 0.01. The mean difference of depression scores before and intervention in experimental and control groups was not significant (P > 0.05). There was a significant difference between the patients in both groups with regard to changes in perception of QOL before and after the intervention. They conclude that the plan was helpful in improving insight of Quality of Life and dipping anxiety.<sup>28</sup>

### Effectiveness of discharge plan for CAD patients/ angioplasty patients

**Akbari M, Celik SS (2018)** conducted study to assess the effectiveness of discharge instruction and counseling after discharge on quality of life after coronary artery bypass graft surgery by using SF 36 questionnaire. Patients were divided

in two group control and interventional group. Intervention was given for six weeks, after 6-week patients in interventional group received educational booklet and discharge training and post discharge counseling, whereas patients in the control group received only routine discharge and post – operative services. After 6 weeks. Result showed that the baseline mean score of quality of life in control and interventional group were  $46.89 \pm 11.91$  and  $46.53 \pm 15.04$  with no group difference ( $p = 0.90$ ) the mean score of QOL of interventional; group was much greater than the control group ( $93.19 \pm 4.45$  vs.  $47.00 \pm 13.43$ ) ( $p = 0.00$ ).<sup>29</sup>

**Grace HLD, Aruna S, Mangals GP (2017)** Conducted study to assess effect of planned teaching program on cardiac rehabilitation among cardiac patients who had cardiac surgery coronary artery bypass grafting. Sample Size was 30. Study was carried out for 5 days. Result showed that the structured teaching program regarding cardiac rehabilitation found to be helpful in improving the level of knowledge mean pretest and posttest regarding coronary rehabilitation among patients undergone coronary artery bypass grafting surgery.<sup>30</sup>

**Sharif.F, Mashkelgash F, Molazem Z, Lalyani MK, Vossughi M.(2014)** conducted randomized controlled trail to assess effect of discharge instruction on stress, anxiety and depression in patients underwent coronary angioplasty. Sample size was 80. Data analysis revealed that the depression anxiety and stress level decreased in patients who were given instructions as compare to control group when they discharged from hospital.<sup>31</sup>

**Rezapoor P, Shahriari M, Sanei H, Moeini M, (2017)** conducted a clinical study to assess the effects of care model based on collaboration on the quality of life of patients who had coronary angioplasty. 50 samples were taken by using probability sampling and randomized into interventional and control groups. Results showed that after 3 months the mean score of quality of life in the intervention group was significantly higher than the control group ( $P < 0.05$ ). Patients who were provided care according model had improved quality of life in all the Physical ( $72.6 \pm 15.3, 84 \pm 12.7$ ), Mental ( $64 \pm 16, 68.8 \pm 16$ ) and Social ( $51.5 \pm 18.9, 75 \pm 14$ ) dimensions than the control group.<sup>32</sup>

#### **MATERIALS:**

Quantitative research approach and Quasi-experimental research design with time series design was adopted. Current study was carried out

in cardiac care unit of Himalayan hospital, Dehradun Uttarakhand India. This is a multispecialty tertiary care center. Judgmental sampling technique was used to enroll the patients in the study. Sample size was 52 patients who had undergone coronary angioplasty. The study included both male and female patients with Age group between 20 to 80 years. The Study excluded Patients who had undergone angiography for diagnostic purpose only and critically ill patients. Tools used for data collection were socio-demographic performa, Self-care practice scale.

#### **METHOD:**

After taking ethical permission was obtained from ethical committee of the University. Written permission was taken from treating physician. The eligible samples were identified. Rationale of the existing study was explained to the study sample who were fulfilling the inclusion criteria of the study and informed written consent was taken. An interview technique was used to collect data from the participant. Pretest was done on the 2<sup>nd</sup> post angioplasty day and then teaching was given to the study participant regarding self-care practices. On 3<sup>rd</sup> post angioplasty day discharge plan which included the information regarding medication, diet, exercise, rest and sleep, stress management and alcohol and smoking cessation was given to the study participant long with teaching regarding self-care practices on above mentioned aspects. On 7<sup>th</sup> post angioplasty day first post test was done on self-care practices by telephonic interview of all the study participants. On 15<sup>th</sup> post angioplasty day 2<sup>nd</sup> post test was done regarding self-care practice by meeting patients face to face at the time of follow up in cardiac OPD. On 30<sup>th</sup> post angioplasty day, 3<sup>rd</sup> post test was done on self-care practices by telephonic interview. The sample size for the study was 52 post angioplasty patients.

#### **DATA ANALYSIS**

The analysis of the data was done on the bases of objectives by using descriptive and inferential statistics. That is frequency and percentage for socio demographic variables and for self-care practice repeated measure ANOVA was used.

#### **RESULT**

**Description of Table 1:** Shows that most (42.31%) of the patients was between the age group of 61-70, majority (82.7%) of the post angioplasty patients were male, 3<sup>rd</sup> half (28.8%)

of the patients had no formal education, Third half (28%) of them had no formal education, about third half (32.7) of them were farmer, most (40.38) of them were having monthly income between ten to twenty thousand rupees.

Half (48.1) of them were vegetarian, majority (69.2%) of the patients belonged to joint family, majority (86.54%) of them were married, majority (64.4%) of them from rural area, more than half (53.85) of them had knowledge about angioplasty procedure, majority (92.3%) of them have no family history of cardiac diseases, majority (61.54%) of them had history of smoking in the past, and majority (51.92%) of them had history of taking alcohol in past as well as 30.77% in the present.

**Description of Table 2(a):** -Showed the mean score of self-care- practices of study participants at pre intervention were  $66.90 \pm 14.07$ , after 7 days was  $92.44 \pm 1.59$ , on 15 days was  $91.46 \pm 1.53$ , and on the 30 days was  $92.06 \pm 1.55$ . Repeated measure ANOVA was carried out to find the variation in the mean scores with  $F=60.360$ ,  $P=0.000$ . This table revealed that there was considerable perfection in the self-care practices from pretest of post angioplasty patients. Therefore, it could be concluded that discharge plan was helpful in improving the practices of post angioplasty patients.

**Description of table 2(b):** -showed the self-care-practices domains wise.

**Medication:** -The mean of medication of self-care practices of study applicants at pre intervention was  $18.33 \pm 11.69$ , on the after 7 days was  $28.00 \pm 0.00$ , on 15 days was  $28.00 \pm 0.00$ , and on the 30 days was  $27.92 \pm 0.55$ . Repeated measure ANOVA was performed to find the difference in the mean scores with  $F=18.65$ , and  $P=0.00$ .

**Diet:** -The mean of diet of self-care practices of study participants at pre intervention was  $24.21 \pm 1.58$ , on the after 7 days was  $31.46 \pm 0.73$ , on 15 days was  $29.73 \pm 0.97$ , and on the 30 days was  $30.44 \pm 0.77$ . With  $F=143.82$  and  $P=0.00$ .

**Exercise:** -The mean of exercise of self-care practices of study participants at pre intervention was  $2.67 \pm 1.34$ , on the after 7 days was  $3.54 \pm 0.50$ , on 15 days was on  $3.75 \pm 0.44$ , and on the 30 days was on  $3.46 \pm 0.50$ . with  $F=15.08$ , and  $P=0.00$ .

**Rest and sleep:** -The mean score of rest and sleep of self care practices of study participants at pre intervention was  $7.71 \pm 1.83$ , on the after 7 days was  $11.08 \pm 0.44$ , on 15 days was  $11.00 \pm 0.39$ , and on the 30 days was  $10.87 \pm 0.37$ . with  $F=87.52$  and  $P=0.00$ .

**Stress management:** -The mean score of stress management of self care practices of study participants at pre intervention was  $4.02 \pm 1.99$ , on the after 7 days was  $6.42 \pm 0.69$ , on 15 days was  $6.98 \pm 0.78$ , and on the 30 days was  $7.35 \pm 0.5$ . With  $F=56.43$  and  $P=0.00$ .

**Alcohol and smoking cessation:** -The mean score of alcohol and smoking of self care practices of study participants at pre intervention was  $9.88 \pm 2.39$ , on the after 7 days was  $12.00 \pm 0.00$ , on 15 days was  $12.00 \pm 0.00$ , and on the 30 days was  $12.00 \pm 0.00$  with  $F=56.43$  and  $P=0.00$ .

This table revealed that there was noteworthy perfection in the self care practices of post angioplasty patients from pretest in all the areas of self care practices i.e. Medication, Diet, Rest and Sleep, Exercise, Smoking and Alcohol. Therefore it could be concluded that discharge plan was helpful in improving the self care practices of post angioplasty patients.

**Description of Table 2 ©:** Shows that overall pre assessment mean of self-care practice score was  $66.90 \pm 14.074$  and the post -assessment mean after 15 days of angioplasty was  $91.46 \pm 1.527$  and one "t" was 12.331 and the calculated t value was more than table value. Hence it showed that the discharge plan was effective in improving self care practices of post angioplasty patients.

**Description of Table 2(d).** Reveals that means percentage of domains of self care practices maximum improvement in post test is seen in medication (100%), alcohol and smoking cessation (100%), followed by exercise (93.75%), diet (92.90%), and rest and sleep (91.66%) and stress management (87.28%).

## MAJOR FINDING

- Majority (82.7%) of the post angioplasty patients were male.
- Majority (92.3%) of them had no family history of cardiac diseases.
- Majority (96.15%) of them had left descending artery blockage.
- Majority (96.15%) of them had single vessel disease.
- All patients (100%) had chest pain.
- Majority (65.4%) of the post angioplasty patients were diagnosed with myocardial infarction.
- Majority (78.8%) of them underwent angioplasty in emergency.
- Discharge plan was effective in improving the self care practices of post angioplasty patients in all the domains of medication, diet, exercise, rest and sleep, stress management and smoking and alcohol. ( $F=60.360$ ,  $P<0.000$ ).

## DISCUSSION

**Demographic Characteristics of post angioplasty patients.** Most (42.31%) of the patients were between the age group of 61–70-year, majority (82.7%) of the patients were male, majority (86.54%) of them were married.

Finding of the study were consistent with the study conducted by **Darvishpour A. et al (2016)** Results showed that most of patients were in the age group of over 60 years (39.6%), 67.9% were male, and 88.7% were married.<sup>(6)</sup>

Another study Conducted by **Xiao L, Wang P, Fang Q, Zhao Q (2018)** revealed that(86.7%) of the participants were male, most (37.3%) of them were between the age group of 61-70 year, majority (87.5%) were married.<sup>(7)</sup>

**Effectiveness of discharge plan on self carepractices of post angioplasty patients.**

Discharge plan was significantly effective in improving the self care practices of post angioplasty patients with regards to medication (F=18.65, and P 0.00), diet (F= 143.82 and P 0.00), exercise (F=15.08, and P 0.00), rest and sleep (F=87.52 and P 0.00), stress management(F=56.43 and P 0.00) and smoking and alcohol cessation(F=56.43 and P 0.00)

Finding of the study were consistent with the study conducted by **Jafari F et al. (2016)** lifestyle modification program was effective in promoting the mean score from pre test to post test of self

care practice in the domains of medication, diet and exercise of hypertensive patients with angioplasty (35.5±10.5, 92.5±2.2).<sup>(8)</sup>

Another study conducted by **Kurane SC, Dani P, Kurane C (2015)** results revealed that cardiac rehabilitation was effective in improving medication, diet and exercise domains of healthy lifestyle practices in chronic heart disease patients significantly.<sup>(9)</sup>

Another study conducted by **Xiao L, Wang P, Fang Q, Zhao Q (2018)** result showed that the health-promoting lifestyle in Spiritual growth was outstanding (26.84±4.34), nutrition (24.49±3.68), stress management (22.93±3.60), except physical activity scores (20.01±4.47).<sup>(10)</sup>

## RECOMMENDATIONS

1. A similar research study can be done with bigger sample size.
2. A longitudinal study can be conducted to determine the effectiveness of discharge plan on self care practices and quality of life of post angioplasty patients after six months and one year of angioplasty.
3. A follow up study can be carried out on effect of discharge plan on the long-term outcome of patients.
4. Similar study can be carried out in patients after other surgeries.

## Section A

### SOCIO-DEMOGRAPHIC CHARACTERISTICS

**Table .1 Frequency and percentage distribution of socio demographic characteristic of study participants.**

N= 52

S.no	Socio demo-graphic variables	Frequency	Percentage %
1.	<b>Age (year)</b>		
	< 40	2	3.85
	41-50	4	7.69
	51-60	19	36.54
	61-70	22	42.31
	71-80	4	7.69
	>80	1	1.92
2.	<b>Gender</b>		
	Males	43	82.7
	Female	9	17.3
3.	<b>Education</b>		
	No formal education	15	28.8
	10 <sup>th</sup>	12	23.1
	12 <sup>th</sup>	7	13.5
	Graduate	10	19.2
	Post graduate	8	15.4
4.	<b>Occupation</b>		
	House maker	9	17.3
	Laborer	1	1.9
	Business	3	5.8
	Retired	15	28.8

	Farmer	17	32.7
	Govt. /private job	7	13.5
5.	<b>Family income (Rupees)</b>		
	< 10,000	9	17.31
	11,000- 20,000	21	40.38
	21,000- 30,000	8	15.38
	31000- 40,000	7	13.46
	41,000-50,000	3	5.77
	51,000-60,000	2	3.85
	>60,000	2	3.85
6.	<b>Type of diet</b>		
	Vegetarian	25	48.1
	Non- vegetarian	24	46.2
	Eggetarian	3	5.8
7.	<b>Type of family</b>		
	Nuclear	16	30.8
	Joint	36	69.2
8.	<b>Marital status</b>		
	Married	45	86.54
	Widow	7	13.46
9.	<b>Living area</b>		
	Rural	34	65.4
	Urban	18	34.6
10.	<b>Previous knowledge about angioplasty</b>		
	Yes	24	46.15
	No	28	53.85
11.	<b>Family history of any cardiac disease</b>		
	Yes	4	7.7
	No	48	92.3
12.	<b>History of smoking in the past</b>		
	Yes	32	61.54
	No	20	38.46
13(a)	<b>Smoking presently</b>		
	Yes	20	38.46
	No	32	61.54
13	<b>Number of years of smoking</b>		
(b)	< 20 years	5	9.62
	21 - 50years	15	28.85
14.	<b>History of taking alcohol in the past</b>		
	Yes	27	51.92
	No	25	48.08
14	<b>Taking alcohol presently</b>		
(a)	Yes	16	30.77
	No	36	69.23
14(b)	<b>Duration of taking alcohol in years</b>		
	<30	8	50
	>30	8	50

## Section B

### SELF STRUCTURED SELF CARE PRACTICE SCALE AFTER ANGIOPLASTY

Table.2 (a) Mean  $\pm$  SD of self care practice score of post angioplasty patients at various assessments.

N=52

S.NO	Tests	Mean $\pm$ Std. Deviation	F*	P
1.	Pre test	66.90 $\pm$ 14.07	60.360	0.000**
2.	Post test 7 <sup>th</sup> day	92.44 $\pm$ 1.59		
3.	Post test 15 <sup>th</sup> day	91.46 $\pm$ 1.53		
4.	Post test 30 day	92.06 $\pm$ 1.55		

F\* Repeated measures ANOVA p< 0.05, significant \*\*

**Table.2 (b) Domains wise Mean score of self care practice of post angioplasty patients at various assessments. N=52**

Domains of self-care practices	Maximum Score	Pre evaluation mean ± SD	7 days post evaluation mean ± SD	15 days post evaluation mean ± SD	1 month post evaluation mean ± SD	F*	P
Medication	28	18.33±11.69	28.00± 0.00	28.00± 0.00	27.92±0.55	18.65	0.00**
Diet	32	24.21±1.58	31.46±0.73	29.73±0.97	30.44±0.77	143.82	0.00**
Exercise	4	2.67± 1.34	3.54±0.50	3.75± 0.44	3.46± 0.50	15.08	0.00**
Rest and sleep	12	7.71± 1.83	11.08±0.44	11.00±0.39	10.87±0.37	87.52	0.00**
Stress management	8	4.02± 1.99	6.42 ± 0.69	6.98 ± 0.78	7.35± 0.56	56.43	0.00**
Alcohol and smoking cessation	12	9.88± 2.39	12.00 ± 0.00	12.00± 0.00	12.00± 0.00	56.43	0.00**

F\* Repeated measures ANOVA, p< 0.05

**Table.2 (c) Comparison of Mean ± SD of pre and post assessment of self care practice score of post angioplasty patients. N= 52**

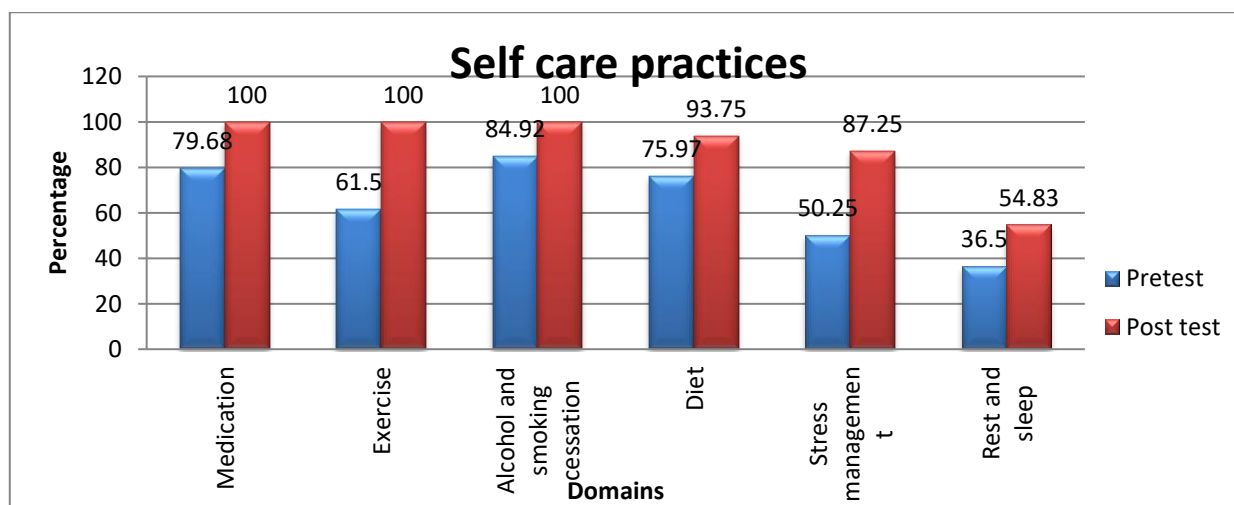
S. No	Self care practices	Mean ± SD	Mean differences	t*	P
1.	Pre test	66.90±14.074	24.558	12.331	0.000**
2.	Post test (2) after 15 <sup>th</sup> day	91.46±1.527			

t\* Paired sample t-test,\*\* Significant p<0.05

**Table.2(d)Domain wise mean percentage of pre and 2<sup>nd</sup> post –test of self care practices (15 days) of post angioplasty patients. N=52**

S. No	Domains of self care practices	Maximum score	Pre-test After 2 <sup>nd</sup> day		Post-test After 15 days		t*	P
			Mean	Percentage	Mean	Percentage		
1.	Medication	28	18.33	65.46	28	100	3.245	0.00**
	Alcohol and smoking cessation	12	9.88	82.33	12	100		
2.	Exercise	4	2.67	66.75	3.75	93.75		
3.	Diet	32	24.21	75.66	29.73	92.90		
4.	Rest and sleep	12	7.71	64.25	11	91.66		
6.	Stress management	8	4.02	50.25	6.98	87.25		

t\* Paired sample t-test, \*\* Significant<0.05



**CONCLUSION:**

This study concluded that discharge plan was effective in enhancing self care practices of post

angioplasty patients in the areas of medication, diet, exercise, stress management rest and sleep.

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