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Original Paper

The Effectiveness of Couple-centered Counseling on the Anxiety and Concerns of Pregnant Adolescents

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ABSTRACT

Introduction: Adolescents are at higher risk for mental health problems during pregnancy.

Objective: The present study was designed to investigate the impact of couple-centered counseling on pregnancy anxiety and concerns in female adolescents.

Materials and Methods: Materials and Methods: The present quasi-experimental study was conducted on primigravida adolescents referring to health centers in Hamadan City, Iran. Using the convenience sampling method, 90 pregnant adolescents were assigned to two groups (intervention group=45, control group=45) using a randomized block design. Both groups completed the demographic questionnaire, pregnancy-related anxiety questionnaire, and Cambridge worry scale. The intervention group received five counseling sessions with the presence of their spouses, in addition to routine pregnancy care. The control group only received routine prenatal care. Posttest was taken four weeks after finishing the consulting intervention. The groups were compared in terms of pregnancy-related anxiety and pregnancy worry scores using the independent t-test, the Chi-square test, the Fisher exact test, and the analysis of variance or covariance. In case of a significant difference between the groups, Cohen's d effect size was calculated.

Results: There was no significant difference between the two groups regarding age, education, and occupation of adolescents and their spouses, duration of the marriage, housing situation, family members, and economic situation. The mean scores of pregnancy concerns in the intervention group (10.80±4.78) were significantly (P=0.001, Cohen's d=2.41) lower than the control group (22.33±4.78). The mean scores of pregnancy anxiety in the intervention group (35.86±8.04) were significantly (P=0.001, Cohen's d=2.74) lower than the control group (57.93±8.04).

Conclusion: Couple-centered counseling can reduce the anxiety and concerns of primigravid adolescents. It is recommended to use this effective, accessible, and acceptable approach to maintain and promote the mental health of pregnant adolescents.

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Highlights

• Pregnant adolescents are more exposed to stress and anxiety due to their young age and insufficient experience.

• Social support, in particular from the spouse, increases the mental health of pregnant adolescents and their ability to cope with stressful situations.

• Men's participation, as an important strategy in achieving the third-millennium development goals, requires their participation in prenatal care.

• Couple-centered counseling can reduce the anxiety and concerns of primigravid adolescents.

Plain Language Summary

Pregnancy in adolescence as a transitional stage may increase adolescents' psychophysical vulnerability. Adolescents in their first pregnancy encounter many challenges in transitioning to their new maternal roles. While the mental health of pregnant women is a major public health concern, pregnant adolescents have been mostly neglected in this regard. It has been documented that the spouse's presence in prenatal care plays a key role in pregnancy safety. This study showed that couple-centered counseling could reduce the anxiety and concerns of primigravid adolescents. We recommend couple-centered counseling because it is an effective, accessible, and acceptable approach to maintaining and promoting the mental health of pregnant adolescents.

Introduction

Although the mental health of pregnant women is a major public health concern, pregnant adolescents have been neglected mostly [1]. The transition from childhood to adulthood may be referred to as 'adolescence' or 'teenage,' which takes about 10–19 years [2]. About 95% of pregnancies between 15 and 19 years of age, which include about 16 million deliveries annually, occur in low- and middle-income countries where complications of pregnancy and delivery are the leading cause of mortality and morbidities for girls in this age range [3, 4]. Although adolescent pregnancies are often the result of sexual abuse or unprotected sex, married adolescent mothers account for a considerable proportion too. Despite reports of a successful pregnancy and childbirth outcome in most married adolescents, pregnancy with wide-ranging biological and psychological changes can specifically influence adolescents [5]. Since the fertility rate shows a decline in Iran [6], It should be noted that pregnant adolescents need special planning in addition to routine prenatal care [7, 8]. Although there is contradictory evidence regarding the relationship between the biological immaturity of adolescent mothers and adverse maternal and perinatal outcomes [9], the young maternal age during pregnancy is still considered an important factor in adverse consequences of pregnancy [10, 11]. Dual biological changes in adolescence and pregnancy may increase one's psychophysical vulnerability [12]. The potential impact of these neurobiological changes can be observed in adolescent mothers who experience higher levels of depression, anxiety, and stress than older mothers [13].

Anxiety is common to all pregnancies; however, pregnant adolescents are more exposed to stress and anxiety during pregnancy due to their young age and insufficient experience [14, 15]. They encounter many challenges in the transition to a new maternal role, so pregnancy in adolescence is denoted an important risk factor for depression and anxiety [16]. Maternal anxiety during pregnancy is associated with obstetric complications, such as cesarean delivery, postpartum depression, and neonatal complications [17, 18]. Researchers presented evidence that maternal anxiety in pregnancy causes behavioral and emotional disorders in their children [19, 20]. In a study by Figueredo, anxiety was observed in 23.3% of pregnant adolescents, and no significant difference was found between the three pregnancy trimesters [11]. However, studies indicate a significant positive relationship between social support and pleasant pregnancy experiences and, in contrast, a significant negative association with unpleasant pregnancy experiences [21, 22]. In particular, the spouse's support during pregnancy and delivery has resulted in better women's tolerance to the pressures and difficulties of pregnancy and delivery [23, 24]. A direct and significant relationship has been shown between women's mental health and spouses' participation during pregnancy [25]. This

participation becomes important because men are often the decision-makers and policy-makers in the family in developing countries [26-28]. Despite all the benefits of male participation in perinatal care, men are still on the fringes of services provided to mothers and lack access to enough information to help them ensure their wives' health. Pregnancy provides a great opportunity for health care providers to provide effective training and counseling by interacting effectively with the pregnant woman and her spouse and playing an important role in reducing the anxiety and worries of pregnant women. Therefore, the present study was designed to investigate the impact of couple-centered counseling based on the spouse's support on pregnancy anxiety and worries in primigravida pregnant adolescents.

Materials and Methods

This quasi-experimental study was conducted on primigravida pregnant adolescents referring to comprehensive health centers in Hamadan City, Iran. To determine the sample size, considering α=0.05, power=0.80, Mean 1=14.8, Mean 2=19.1, SD 1=8.3, and SD 2=5.5, for mean scores of pregnancy concerns reported by Çankaya et al. [29], and concerning 5% possible sample dropout, the number of samples in each group was calculated as 45 couple. The inclusion criteria were as follows: age between 12-19 years, normal singleton pregnancy without assisted reproductive techniques, gestational age of 16-32 weeks, psychophysical health, and reading and writing literacy. The exclusion criteria were as follows: the absence of more than one counseling session, preterm delivery, intrauterine fetal death, and the occurrence of any obstetrics or medical complications during the study. Before the research, the participants were informed about the research objectives, and verbal and written consent was taken from them.

In this study, three questionnaires were used to collect the data. First is the demographic characteristics questionnaire that includes the age and education levels of adolescents and their spouses, the occupation of the spouse, duration of the marriage, gestational age, the number of household members, and housing status.

Second is the Cambridge Worry Scale (CWS), which measures pregnant women's concerns about infant health, delivery, and communication with others. This scale consists of 16 items and four components: socio-medical)4 items(, own health)3 items(, socio-economic)4 items(, and relational)5 items(. Scores ranged from "0=not a worry" to "5=major worry." The total score can vary from 0 to 80, with a higher score representing the severity of worries [30]. In the present study, we used the Persian version of the CWS, whose psychometric properties have been examined by Mortazavi and Akbari [31]. In the present study, the reliability of the questionnaire was calculated using Cronbach alpha as 0.86. The third is the short version of the Pregnancy-related Anxiety Questionnaire (PRAQ) that contains 17 items and measures the subscales of fear of childbirth (3 items), fear of giving birth to a child with physical or mental health issues (4 items), fear of change in the marital relationship (4 items), fear of changes in mood and its consequences on the child (3 items), and self-centered fear or fear of the changes in the personal life of the mother (3 items). The final score is obtained from the sum of the questionnaire scores. Each item is scored from 1 to 7. Hence, the pregnancy anxiety score can be between 17 and 119 [32]. In the present study, we used the Persian version of the PRAQ, whose psychometric properties have been examined by Askarizadeh et al. [33]. The internal reliability of this questionnaire in the present study was calculated using Cronbach alpha coefficient as 0.87.

Using the convenience sampling method, 90 primigravida women aged 12-19 years referred to 19 health centers in Hamadan City, Iran, were selected. Then the women with the inclusion criteria were divided into the control (n=45) and intervention (n=45) groups based on a predetermined allocation sequence using quadruple blocks. Accordingly, the women were assigned to two groups based on the quadruple random sequence method in the R software (ABAB, ABBA, BAAB, AABB, BBAA, and BABA). The type of intervention was written in opaque closed envelopes and coded in sequence order. Finally, 45 envelopes in the package were given to the researcher (Figure 1).

After necessary coordination, pregnant women in the intervention group were placed in groups of 8–10 participants, and five weekly 45-60 min counseling sessions were performed for them in the presence of spouses, in addition to routine pregnancy care. The counseling sessions were held in the mothers' education class at a general hospital in Hamadan City. The content of the counseling sessions and the implementing process were guided by an expert in the field of adolescent reproductive health. The counseling sessions were presented in simple language that couples could understand based on basic information and a comprehensive study of valid scientific references. Counseling sessions were held in pairs through lectures, questions and answers, group discussions, and presentations of educational booklets (including physical changes during pregnancy, common

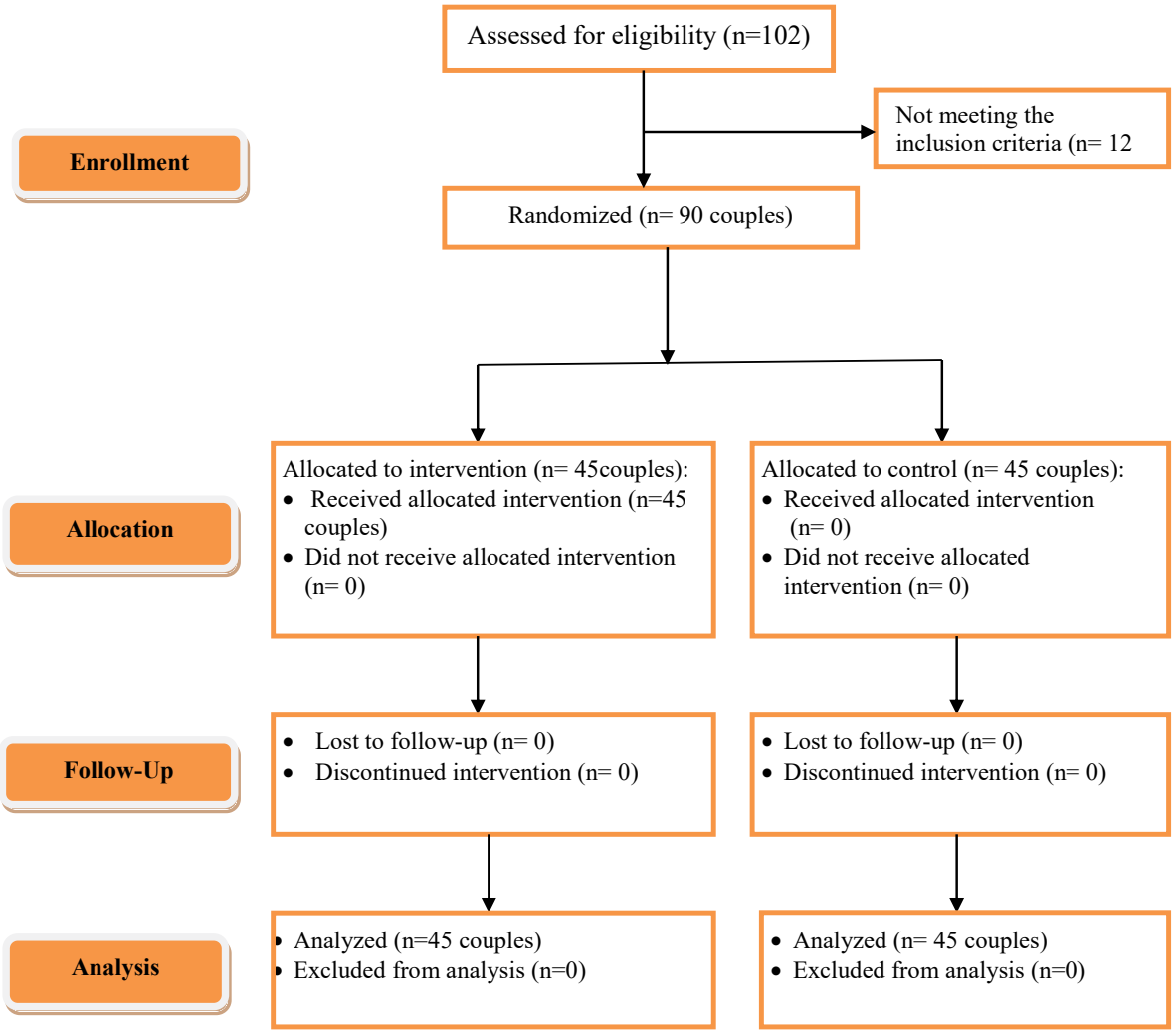

Figure 1. CONSORT study flow chart

complications, nutrition, general hygiene, prenatal exercises, sexual health, warning signs, mental changes during pregnancy, the role of fathers, delivery, puerperium, breastfeeding, and neonate cares), as well as videos related to adolescence pregnancy and importance of spouses' participation. The content of the program sessions is summarized in Table 1.

At the end of each counseling session, feedback was received from the couples, and they were asked to inform the researcher to receive the required counseling if necessary. During this time, the control group only received routine prenatal care. Posttest was taken four weeks after the last session, and the two groups again completed questionnaires.

The obtained data were analyzed using the Stata-13 software. The normality of quantitative data distribution was examined using the Kolmogorov-Smirnov test. The two groups were compared in terms of demographic variables with the independent t-test for quantitative data and the Chi-square test and Fisher exact test for the qualitative data. Differences in pregnancy worry, as well as pregnancy-related anxiety scores between the two groups, were evaluated using the analysis of variance (ANOVA) or analysis of covariance (ANCOVA). To demonstrate the effectiveness of the intervention, the standardized mean difference (Cohen's d) was calculated and interpreted as follows: 0.20-0.40, small; 0.50-0.70, moderate; and >0.80, large. A significant level of < 0.05 was considered in all statistical tests.

Results

Except for the mean gestational age (27.3±2.9 in intervention and 29.5±2.6 weeks in the control group), there were no significant differences between the two groups in terms of Mean±SD age of pregnant adoles-

Table 1. Contents of the counseling sessions in the intervention group

Sessions	Goals	Contents
1st	Introduction, communicating with pregnant adolescents and their spouses	-Welcoming, acquaintance with the research objectives, time, and number of sessions -Ensuring couples, the confidentiality of conversations -Explanation of the reason for requesting the presence of spouses and their attendance in the sessions due to their abilities and important effect, as well as the importance of pregnancy support.
2nd	Identifying concerns related to pregnancy	After establishing a safe and comfortable relationship between the couple and the counselor, the couple was asked to express their feelings, worries, fears, and annoying thoughts about pregnancy.
3rd	Provide information and clear up ambiguities, and correct misconceptions about pregnancy	-Necessary information was provided to eliminate negative feelings and thoughts resulting from wrong knowledge and ambiguities. -Couples were introduced to the process of pregnancy and childbirth with an emphasis on the developmental and physiological aspects of adolescents' pregnancy, and the psychological needs of pregnant adolescents and the importance of adapting to pregnancy were emphasized.
4th	Emphasis on couples' abilities to deal with pregnancy concerns	Couples were asked to describe how they coped with the usual anxieties and worries in their lives. Then, their talents and abilities to adopt the correct coping strategies were encouraged.
5th	Comparing the outcome of adolescent pregnancy with or without the spouse's support	-The benefits of spouse companionship and its effect on pregnancy outcomes and the mental health of pregnant women were discussed, and pregnancy outcomes in adolescents with and without spouse support were compared. -Supportive behaviors of spouses during pregnancy were explained with an emphasis on adolescent pregnancy and examples of spouses' support.

cents (17.75±1.26 in intervention and 17.66±1.16 years in the control group), their spouses' Mean±SD age (28.84±3.08 in the intervention and 28.11±3.65 years in the control group), and duration of marriage (2.6±1.2 in the intervention and 3.0±1.5 years in the control group). The level of education in the majority of couples was under a diploma, and the majority of the couples were living together, not with their relatives. Most couples reported their economic situation to be moderate (Table 2).

Comparison of the mean scores of pregnancy concerns in the posttest stage showed that by controlling the effect of pretest mean scores of concerns (27.8±8.8 in the intervention and 23.3±11.9 in the control group, P=0.04) and gestational age, the mean scores of pregnancy concerns in the intervention group were significantly lower than the control group, and this difference was statistically significant (P=0.001). Cohen's d value of 2.41 indicates a strong effect of the intervention on pregnancy concerns (Table 3). Comparison of the mean scores of pregnancy anxiety in the posttest stage showed that by controlling the effect of the pretest mean score of anxiety (62.6±9.1 in the intervention and 57.7±11.8 in the control group, P=0.02) and gestational age, the mean score of pregnancy anxiety in the intervention group were significantly lower than the control group and this difference was statistically significant (P=0.001). Cohen's d value of 2.74 indicates a strong effect of the intervention on pregnancy anxiety (Table 4).

Discussion

The present study demonstrates that the anxiety and concerns of primigravida adolescents can be reduced by couple-centered counseling based on spouses' support. Peter et al. in their study on pregnant adolescents, found that spouses' support can increase the mental health of pregnant adolescents and their ability to cope with stressful situations [5]. In contrast, spending pregnancy without the support and non-participation of men increases women's mental disorders during pregnancy [34]. The association between spouse support and the anxiety of pregnant women at different ages, but not in pregnant adolescents, has been shown in other studies in Iran. For example, Barjesteh et al. studied the relationship between pregnant adult women's worry and anxiety and spouse support. The results revealed that couple counseling positively affected the reduction of anxiety and worry in pregnant adult women. Moreover, anxiety and worry scores were lower in women who received couple counseling based on spouse support than in those who did not receive this intervention [35]. Therefore, paying particular attention to the participation of men in the field of prenatal care is necessary. However, prenatal care is mostly limited to mothers,

Table 2. Comparing demographic characteristics of pregnant adolescents and their spouses between two groups (n=90)

Variables		No. (%)/Mean±SD		P
		Intervention (n=45)	Control (n=45)	
Women's age (y)		17.75±1.26	17.66±1.16	0.73*
Spouses' age (y)		28.84±3.08	28.11±3.65	0.3*
Gestational age (wk)		27.3±2.9	29.5±2.6	<0.001*
Duration of marriage (y)		2.6±1.2	3±1.5	0.17*
Women's education	Under diploma	34(75.6)	33(73.3)	0.8**
	Diploma	11(24.4)	12(26.7)	
Spouse's education	Under diploma	17(37.8)	23(51.1)	0.17**
	Diploma	18(40)	18(40)	
	University	10(22.2)	4(8.9)	
Spouse's occupation	Unemployed	2(4.4)	4(8.9)	0.67**
	Employed	43 (95.6)	41 (91.1)	
Housing statues	Rental	17(37.8)	7(15.6)	0.05**
	Owned	15(33.3)	18(40.0)	
	Living with parents	13(28.9)	20(44.4)	
Family members	2	32(71.1)	23(51.1)	0.11**
	3	1(2.2)	6(13.3)	
	4	5(11.1)	8(17.8)	
	≥5	7(15.6)	8(17.8)	
Economic situation	Good	8(17.8)	11(24.4)	0.35**
	Moderate	34(75.6)	28(62.2)	
	Low	3(6.7)	6(13.3)	

*The independent t-test; **The chi-square test or the fisher exact test.

particularly in developing countries, and health providers do not pay attention to spouses' participation. Parsa et al. studied the effect of counseling with pregnant Iranian women on their anxiety reduction and reported that the absence of fathers in prenatal care training sessions was an important limitation of their study [36].

According to the World Health Organization, men's participation in prenatal care is an important component of a safe pregnancy [37]. Soltanshahi et al. in their field trial study on 150 pregnant women, found that the presence of spouses in preparation classes for childbirth promotes social support among pregnant women [38]. Mental health care is an important component of prenatal care programs [37]. In the meantime, adolescents and young women are at higher risk for mental health problems during pregnancy and after delivery. In particular, primigravida adolescents need more support to cope with maternal challenges and to overcome doubts, anxieties, as well as fears.

Most adolescent pregnancies occur between 15 and 19 years of age [38]. In the present study, most pregnant adolescents aged about 17 years in both groups, and evidently, the education level was less than a high school diploma. There is a clear relationship between

Table 3. Comparing pregnancy concerns between the intervention and control groups using analysis of variance or covariance

Groups	Mean±SD	F	P	Cohen's d	(95% CI)
	After Intervention*				Lower-Upper
Intervention	10.80±4.78	114.39	0.001	2.41	1.86-2.95
Control	22.33±4.78				

*Adjusted for pretest scores of concerns and gestational age.

The Cohen's d interpretive areas of 0.20-0.40 are considered small, 0.50-0.70 moderate, and and >0.80 large.

early motherhood and low educational achievement or high school dropout [5]. A study by Yurdakul et al. on pregnant adolescents living in Anatolia, Turkey, indicated interference with the education of participants in the case group, and most of them had primary and lower levels of education [34].

Education is an essential protecting factor against early pregnancy, and more years of education reduces early pregnancy [5]. About 30-50% of the pregnant adolescents participating in our study lived with one of the couple's parents, and most of them reported moderate income levels. Early marriages are mostly observed in families with low levels of education and a poor socio-cultural structure. In such poor socio-cultural conditions, girls are convinced that they will find a social status when they have children; thus, they tend to have children with the motivation to obtain a respectable position in society [34]. In this study, the spouses of the participating pregnant adolescents were not adolescents, and most were significantly older (more than 10 years) than mothers. However, all pregnant adolescents in the two groups reported marital satisfaction.

Since married adolescents have more difficulty communicating with their peers, they seem to receive more support from their families, particularly adult spouses. In the study of Yurdakul, pregnant adolescents expressed satisfaction with living with their adult spouses. The authors suggested that acceptance of the status quo might be related to pregnant adolescents' attempts to pretend to have good psychological status or to a lower level of education [34].

The results of our study revealed that couple-centered counseling based on spouse support could reduce the anxiety and concerns of primigravid adolescents. Therefore, it is recommended to use this effective, accessible, and acceptable approach in the prenatal care process to maintain and promote the mental health of pregnant adolescents.

A limitation of the current study is that adolescents with out-of-marriage pregnancies were not addressed here, considering only married adolescents. Moreover, the supportive role of spouses in the present study cannot be generalized to adolescent fathers because adolescents, as future fathers, encounter major challenges in accepting the parental role, and their interactions with their adolescent wives may differ significantly from those of adult men. To ensure the mental health of pregnant adolescents, one of the critical issues is to conduct similar interventions to identify more effective sources of social support [22]. Because the cultural context may influence adolescents' pregnancy, conducting similar studies in other settings is recommended. It is also suggested that other studies be conducted with a longer follow-up period so that the results can be more cited.

Table 4. Comparing pregnancy anxiety between the intervention and control groups using analysis of variance or covariance

Groups	Mean±SD	F	P	Cohen's d	(95% CI)
	After Intervention*				Lower-Upper
Intervention	35.86±8.04	149.85	0.001	2.74	2.16-3.31
Control	57.93±8.04				

*Adjusted for pretest scores of anxieties and gestational age.

The Cohen's d interpretive areas of 0.20-0.40 are considered small, 0.50-0.70 moderate, and >0.80 large.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of the Vice Chancellor for Research of Hamadan University of Medical Sciences 9IR.UMSHA.REC.1399.4730. Written consent was obtained from the participants, and they were assured of the confidentiality of their information.

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Authors' contributions

Conceptualization and methodology: Farzaneh Soltani, Roya Sanginabadi, Azita Tiznobaik; Data collection: Roya Sanginabadi; Data analysis: Farideh Kazemi, Roya Sanginabadi; Writing the original draft: Farzaneh Soltani and Roya Sanginabadi; Final draft writing, reviewing and editing, and supervision: All authors.

Conflict of interest

The authors declared no conflict of interest.

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