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Premature Birth: Social Support as a Predictor of Positive and Negative Aspects of Maternal Well-Being

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Abstract

A birth before the 37th week of pregnancy is considered premature birth. In Croatia, about 2500 children are born prematurely annually, and public awareness of the problems and consequences with which premature infants and their parents meet is extremely low. Prematurely born children are particularly sensitive in their infant age and during early development, which causes their parents to face many challenges. Therefore, the main goal of this research was to determine the level of stress, anxiety and depression in parents of premature children, and the correlations between measures of social support and some aspects of maternal well-being (stress, depression, anxiety, life satisfaction and post-traumatic growth). The study involved mothers with one child that was born prematurely ($N = 164$), at an average age of 33 years. The average age of the prematurely born children were 3 years, they were born 2 months before the term, and they were treated at the neonatal intensive care unit on the average of 44 days. Depression, Anxiety and Stress Scale, Satisfaction with Life Scale, Post-traumatic Growth Questionnaire, and Social Support Scale have been applied. In line with the assumption of the protective role of social support from the negative effects of stress, significant negative relationships of social support of friends and families have been identified with anxiety, depression and stress measures. Consequently, mothers of prematurely born children who are receiving more support from friends and family are more satisfied with life and show more positive changes in personal strength, social relationships and life philosophy. The results of regression analysis show that the perception of depression, stress, anxiety, and life satisfaction mostly benefits from support to self-esteem by friends.

Keywords: premature birth, social support, maternal well being

Introduction

Birth before the 37th week is considered to be a premature birth, and the baby born before the 37th week of gestation is considered a prematurely born baby. Given the gestational age, newborns are divided into: *late premature* babies (born between 34 and 36 weeks), *moderate premature* babies (born between 30 and 33 weeks of age), *very premature* babies (born between 26 and 29 weeks of gestation) and *extreme premature* babies (children born before the 26th week) (Sears, Sears & Sears, 2014; Stanojević, 2011). The survival rate of late and moderate premature babies is between 98-100% and most of these children have no long-term medical problems. According to this research, very premature babies often have immature lungs and there is a risk of long-term medical problems. The survival rate for children in this group is 90%. When it comes to extreme premature babies, 25-50% survive, but more than half will have some form of long-term medical problems (vision problems, neurological deficit, difficulty in learning) (Benjak, 2011). Over the past twenty years the prevalence of premature birth in developed countries has reached 5-7% of all births, and according to data collected in Croatia in 2013 there were 6.2% premature births (2497) of which 236 children died during the perinatal period (Rodin, Đelmiš, & Juras, 2014).

The biological maturation of the baby during pregnancy allows time for the parents to prepare for parenthood (Speilman & Taubman-Ben-Ari, 2009). For the parents of premature children the process of transition to parenthood is suddenly and unexpectedly interrupted, and the process of "*premature parenthood*" begins, which both parents need to adapt to (mothers do not meet the ideal expectations of pregnancy, while fathers, during the adaptation period also take on the role of keeping the family stable). Birth and hospitalization of the infant in neonatal intensive care unit (NICU) is an unnatural environment for parents and a potential source of stress. According to research conducted in Croatia (Kostović Srzentić, Pukljak Iričanin, Grubić, Bogdanić, & Filipović Grčić, 2017), even 50% of the parents were in clinically significant distress and the most stressful dimension in neonatal intensive care unit was parental role alteration. The most common emotional reactions of parents to this unit in hospital include disappointment, guilt, sorrow, depression, hostility, anger, fear, anxiety, helplessness, feeling of failure and loss of self-esteem (Kendall-Tackett, 2009; Kyno et al., 2013; Sears et al., 2014).

Previous research found that women with preterm births experience higher levels of stress than women who deliver at term (Misund, Nerdrum, & Diseth, 2014). Stress related to premature birth can interfere with the establishment of safe attachment between a mother and a premature child after the release from the hospital (Schappin, Wijnroks, Uniken Venema, & Jongmans, 2013). Accordingly, stress and depressive feelings in a mother may be a risk factor for later developmental (behavioural and cognitive) problems in prematurely born infants (Wormald et al., 2015). Since this is an unexpected event that endangers the physical integrity of a mother, but also the child, the premature birth has characteristics of trauma (Dudek-Shriber, 2004; Vanderbilt, Bushley, Young, & Frank, 2009). The experience can lead to symptoms of post-traumatic stress disorder: reliving the birth, avoiding all reminders of birth and increased excitability that manifests itself as insomnia, irritability and reduced tolerance for frustration. The symptoms of trauma (intense fear, helplessness, frightening thoughts, reliving the birth) are present after 6 to 18 months after premature birth in almost 41% of parents (Affleck & Tennen, 1991). Vanderbilt et al. (2009) found that 23% of parents who resided in the neonatology unit meet the criteria for PTSD. Risk factors for developing PTSD are medical complications, the experience of birth, previous traumatic experiences, interaction with medical staff, and length of stay in the intensive care unit (Vanderbilt et al., 2009). Research further show that mothers of premature babies have a higher risk of developing depression than mothers of children born through regular pregnancy (Misund et al., 2014). In addition, the data show that the frequency of postpartum depression in parents of prematurely born babies is about 40% in the early perinatal period, compared to 8-15% in the parents of children that were born from a regular pregnancy. According to the authors Jones, Rowe and Becker (2009), parents of premature babies are

particularly vulnerable in the period after the release from the hospital, when they take full responsibility and care for the child without the help of the medical and other professional staff available at the hospital. With the feeling of happiness that a child leaves the hospital, the mothers feel anxious and unprepared for caring for the child. They have a fear of failure. The *Transactional Model of Stress* (Lazarus & Folkman, 1984) can explain this critical period for parents where the release of premature babies from the hospital is perceived by parents as a threat (primary stress assessment) - parents are more afraid for the child's life when they assume that the responsibility for its care and development is on their own. The perception of threat with the assessment of uncontrollability of the situation (secondary assessment) is related to the mother's stress after the release from the hospital (Jones et al, 2009).

After premature labor, the sense of losing control, insecurity and fear may lead new mothers to feel unsuccessful in their maternal role. Therefore, it is not surprising that mothers of prematurely born children feel greater stress intensity in their parental roles, more pronounced pessimism and health problems, and greater need for social support than mothers who gave birth to healthy children (Martinac Dorčić, 2007). Social support has an important role in the experience of psychological stress and affects both appraisal and coping (Lazarus, & Folkman, 1984). Social support positively affects the person's psychological functioning by altering the cognitive assessment and/or emotional response to a stressful event and helps the person to confront it (Jones et al, 2009). Social support reduces the effects of stressful events through supportive behaviour of others or through perception of accessibility of social support. Most common supportive functions are: emotional support, instrumental support, information support, social support, validation. In general, support behaviours of others increase the effectiveness of coping while the perception of the availability of social support reduces the assessment of the intensity of the potential threat of stress situations (Hudek-Knežević & Kardum, 2005). Weiss and Chen (2002) have confirmed the protective role of social support in parents of prematurely born children. More importantly, significant relationships were established between the social support of the family and friends and the parent's mental health. Research further shows that mothers of prematurely born children show a more pronounced need for social support immediately after discharge from the hospital (e.g. May, 1997). Accordingly, the results of research conducted by Pinneli (2000) show that social support is most accessible in the acute phase of stress or just after delivery and discharge from hospital. Affleck and Tennen (1991) examined the coping strategies used by parents of premature infants while their child was in the hospital. The results showed that the most common coping strategies were mobilizing support and seeking meaning.

Most of the research focused on the negative implications that premature birth has for the psychological functioning of parents. Some new data in this field suggest that premature birth can also contribute to personal growth (Spielman & Taubman-Ben-Ari, 2009).

The term posttraumatic growth describes positive changes after challenging events (Tedeschi, Park, & Calhoun, 1998). Tedeschi and Calhoun's (1995) model highlights that personal, situational, cognitive and social factors are relevant for the explanation of psychological growth. The process of posttraumatic growth is related to individuals' cognitive reconstruction that leads to the adaptation of new reality (Xiaoli et al., 2019). The first research in this field focused on traumatic events, but there are findings (e.g. Sawyer & Ayers, 2009) that imply that growth is not just restricted to traumatic experience. Sawyer, Nakić Radoš, Ayers and Burn (2015) found that 44% and 35% of women from the UK and Croatia, reported a moderate level of growth after childbirth. The results of this study suggested that normative events can also promote growth. Stress associated with premature birth may be a common experience among parents but the ways in which parents cope with the situation may differ. More specifically, with all the difficulties that premature birth carries, parents are more often talking about experiences of positive personal and life changes that lead to greater competence and satisfaction (Speilman & Taubman-Ben-Ari, 2009). It is important to point out that post-traumatic growth does not mean that the symptoms of trauma are gone, but coping with trauma in a new form that improves psychological functioning in specific domains. So, women after childbirth may experience growth independently

of post-traumatic stress symptoms (Sawyer & Ayers, 2009). When experiencing post-traumatic growth, the level of threat is also important, where higher levels of threat are associated with higher growth, which can be explained by the fact that low levels of stress are not enough to endanger the schemes about the world and trigger cognitive and emotional reconstruction (Tedeschi & Calhoun, 1995).

The main goal of the research was to determine the level of stress, anxiety, depression and life satisfaction and post-traumatic growth in mothers of premature children and to determine their relations with measures of social support from family and friends. This research also aimed to determine the contribution of some aspects of social support of family and friends to the maternal well-being. In line with the assumption of stress-protective role of social support from negative effects of stress, significant negative relations of social support of friends and family were expected with anxiety, depression and stress measures. Furthermore, positive relations were expected between social support and measures of life satisfaction and post-traumatic growth. In other words, mothers who receive more social support from friends and family would be more satisfied with life and show more positive changes in their personal strength, social relationships and life philosophy (post-traumatic growth).

Method

Participants

The research involved mothers of only one child who was born prematurely ($N = 164$), and aged 33 on average ($SD = 5.54$, range 20 - 49). The average age of prematurely born child was 3 years ($SD = 3.29$, range 0.08 - 18). On average, the children were born 2 months before the term ($SD = 0.75$, range .075 - 4.25) and spent time in the neonatal intensive care unit 44 days on average ($SD = 47.92$, range 0 - 325). Given the gestational age, the majority of children (40%) were late prematures, 31% moderate prematures, 24% low prematures and 5% extreme prematures. According to mothers' estimates, about 40% of children have some form of developmental difficulties. The most common is motor damage (55% of premature children), then the language difficulties (26%) and sensory integration difficulties (15%), while about 5% of premature children have some form of epilepsy.

When it comes to sociodemographic characteristics, specifically marital status, the majority of women were married (76%) and cohabiting (18%) while the rest were single (3%), in a relationship (2%) or divorced (1%). The majority of women have higher qualifications (58%), while the rest have high school (41%) and primary (1%) qualifications. As far as the financial situation is concerned, and according to their self-report, 69% of the participants have an average income, while 27% think they live better or considerably better than the average. Only about 4% of participants believe they live worse than the average. When it comes to health, the largest number of participants, about 85% of them, according to their self-report, have a good health status, while about 15% of participants believed that they had bad or moderate health status at the time of the research.

Instruments

Depression, Anxiety and Stress Scale (DASS; Lovibond & Lovibond, 1995)
adapted by Reić Ercegovac & Penezić (2012).

The DASS scale consists of the subscale of depression, the subscale of anxiety, and the subscale of stress, each of which has 14 items. Subscale of depression refers to symptoms of dysphoria, hopelessness,

self-defeat, apathy, and a lack of interest. The subscale of anxiety refers to autonomic arousal system and situational anxiety. The subscale of stress includes indicators of chronic, non-specific excitement, difficulties with relaxation, anxiety, impatience, etc. The Cronbach α coefficients for the subscales in this study were: .97 for the subscale of depression, .96 for the subscale of stress and .95 for the anxiety subscale. The respondents have to answer by rounding the appropriate number on the 4-degree estimation scale, 0 - *it does not apply to me*, to 3 - *it completely applies to me*. The overall result is calculated as a linear combination of estimates for each subscale.

Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985).

The scale consists of 5 items; the participants are asked to indicate to what extent the items (e.g. "*My life is very close to what I find ideal*") refer to their lives. The items are rated on 7-point scale ranging from 1 - *I generally disagree* to 7 - *I completely agree with*. The overall result is formed by adding the response estimates for all five items, and indicates the degree of life satisfaction, with higher results pointing to greater satisfaction. In this study, the reliability was satisfactory ($\alpha = .88$).

Social Support Scale (MacDonald, 1998) adapted by Ivanov & Penezić (2010).

The scale includes the perception of receiving social support from family and friends, and relates not only to the potentially available support, but also to the social support that is being actively used. It also includes satisfaction or positive evaluation of social support. It consists of 56 items, 28 of which refer to the social support from the family and 28 to the social support from friends. Each of these two subscales contains four types of social support: *emotional support, instrumental support, informational support, and support to self-esteem*. It is possible to use the result on the total scale or more subscales (depending on the research goals). Ratings are completed on the 5-point assessment scale, and the total result is calculated as a linear combination of responses on all items of the scale, or subscale. A higher score on the scale/subscale suggests a greater social support. Reliability coefficient for both subscales (family social support subscale and friend support subscale) in this study was .97.

Posttraumatic Growth Questionnaire (Tedeschi & Calhoun, 1995) adapted by Malada (2018).

Posttraumatic Growth Questionnaire - measures the degree to which people experience positive psychological changes due to trauma. It consists of 21 items that cover changes in 5 domains (relationships with others, new opportunities, personal power, spiritual changes, respect for the value of life). The participants need to assess on a 5-degree scale the extent to which these psychological changes have occurred due to premature birth - an unexpected event that has trauma characteristics (1 - *I did not experience it*, 5 - *I experienced it completely*). The overall score is determined as a sum of all estimates and ranges from 21 to 105. The Cronbach α coefficient in this study was .98.

Procedure

The research was conducted through online questionnaires. Participants were able to access the questionnaires via links that were shared on the online social network 'Facebook' in groups that support prematurely born children and their parents. Participants were provided with information about the study and they could withdraw at any time. The research was completely anonymous, and all data were recorded in the common table on the web site www.docs.google.com, which only researchers had access to.

Results

Levels of positive and negative aspects of maternal well-being

For anxiety variables, depression and stress, the distribution of results was shifted to lower values. The distribution of results of social support measures was shifted to higher values - mothers of premature children perceive a high level of social support by family and friends. The distributions of post-traumatic growth and life satisfaction are also negative asymmetric - mothers of premature children are generally satisfied with their lives and experience positive changes after childbirth. Around 69.5% of the mothers reported at least a moderate degree of positive change (>62¹ on posttraumatic growth) following a premature birth.

Table 1 *Basic descriptive statistics of individual measures used in this research (N=164)*

	<i>M</i>	<i>SD</i>	Min	Max
Depression	7.75	10.35	0	42
Anxiety	9.75	10.44	0	42
Stress	15.01	11.28	0	42
Life satisfaction	3.63	.91	1	5
Post-traumatic growth	68.74	29.65	0	105
<i>Support from family</i>				
Emotional family support	29.87	6.29	7	35
Self-esteem family support	27.79	6.02	7	35
Informational family support	29.46	6.31	9	35
Instrumental family support	29.36	5.42	11	35
<i>Support from friends</i>				
Emotional friend support	29.27	5.77	7	35
Self-esteem friend support	28.37	5.31	10	35
Informational friend support	28.92	5.89	10	35
Instrumental friend support	27.61	5.79	8	35

The results on the scales of depression, anxiety and stress in this research were compared with the results of pregnant women and mothers with children up to one year of age (Reić Ercegovac & Penezić, 2012). The results of these comparisons are shown in Table 2. By comparing the results, it can be seen that mothers of premature children show a significantly higher degree of depression, anxiety and stress than the average population of healthy adults (Lovibond & Lovibond, 1995) and in relation to pregnant women and mothers with children younger than 1 year.

The analyses of demographic (maternal age) and childbirth variables (child's age, gestational age at birth, the presence of the developmental difficulties) found no significant associations between these variables and depression, anxiety, stress and life satisfaction variables, with the exception of the presence of the developmental difficulties (yes/no) which was associated with life satisfaction ($r = .23, p < .05$). Mothers

1 Sawyer et al., (2015)

whose children have no difficulties are more satisfied with life. Posttraumatic growth is negatively associated with gestational age ($r = -.18, p < .05$).

Table 2 Comparison of mothers of premature children in depression, anxiety and stress versus “adult population” and “general perinatal women”

	Adult population ($N=2914$) ²	“General perinatal women” ($N=108$) ³	Mothers of premature children ($N=164$)	t (df) (Mothers of prematures / norms)	t (df) (Mothers of premature/“general perinatal women”)
	M (SD)	M (SD)	M (SD)		
Depression	6.34 (6.97)	4.4 (6.38)	7.75 (7.71)	2.35 (163)*	5.58 (163)**
Anxiety	4.7 (4.91)	5.94 (5.29)	9.75 (10.44)	6.23 (163)**	4.70 (163)**
Stress	10.11 (7.9)	11.33 (7.2)	15.01 (11.28)	5.56 (163)**	4.18 (163)**

* $p < .05$; ** $p < .01$

Social support in relation to maternal well-being

The Table 3. consists of inter-correlations between individual aspects of psychological functioning and social support from family and friends. As can be seen, significant negative correlations have been identified for all aspects of social support of family and friends (emotional support, self-esteem support, information and instrumental support) with depression, anxiety and stress. Accordingly, mothers of premature children who perceive more social support by family and friends are less depressed, anxious, and perceive lower levels of stress.

Support from friends (all aspects) and instrumental support from family were significantly and positively associated with the levels of growth. Life satisfaction was associated with both family and friends support. As a result, mothers of prematurely born children who receive more support from friends and family are more satisfied with life.

Table 3 Correlations between certain measures of psychological functioning and social support

	Depression	Anxiety	Stress	Life satisfaction	Post-traumatic growth
1. Emotional <i>family</i> support	-.41**	-.35**	-.28**	.49**	.12
2. Self-esteem <i>family</i> support	-.38**	-.34**	-.29**	.48**	.09
3. Informational <i>family</i> support	-.32**	-.26**	-.19*	.44**	.14
4. Instrumental <i>family</i> support	-.37**	-.33**	-.25**	.43**	.21**
5. Emotional <i>friend</i> support	-.43**	-.39**	-.34**	.46**	.20**
6. Self-esteem <i>friend</i> support	-.46**	-.43**	-.39**	.48**	.20**
7. Informational <i>friend</i> support	-.36**	-.33**	-.27**	.41**	.20**
8. Instrumental <i>friend</i> support	-.38**	-.34**	-.31**	.41**	.18*

* $p < .05$; ** $p < .01$

2 Lovibond and Lovibond (1995)

3 Reić Ercegovac and Penezić (2012).

The following passage contains the results of standard regression analysis with some aspects of social support as predictors and the perception of some aspects of psychological functioning as criteria (depression, anxiety, stress, life satisfaction and posttraumatic growth). As can be seen in Table 4, the social support from family and friends, together explains about 30% of depression variance, 26% of anxiety variance, and 23% of stress variance in a sample of mothers of premature children. When it comes to positive aspects of psychological functioning, the social support of family and friends explains about 33% of life satisfaction variance, and only 9% of the post-traumatic growth variance.

The perception of depression, stress and anxiety is mostly contributed by support to self-esteem by friends. Mothers of premature children who are more satisfied with the self-esteem support from friends are less depressed and anxious, and experience lower levels of stress. Emotional support from the family is a positive predictor of depression. Mothers of premature children who receive more emotional support from their family are less depressed.

Furthermore, self-esteem support is a positive predictor of life satisfaction, meaning that the support from friends who have important information relevant to self-evaluation contribute to a greater life satisfaction. The perception of instrumental family support is the only positive predictor of post-traumatic growth, that is, there is a higher probability of post-traumatic growth in mothers of premature children who receive more concrete help from their own family.

Table 4 *The results of standard regression analysis with the characteristics of social support as predictors and some aspects of psychological functioning as criteria (N=164)*

	Depression	Anxiety	Stress	Life satisfaction	Post-traumatic growth
	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)
1. Emotional <i>family</i> support	-.47** (.22)	-.39 (.22)	-.37 (.23)	.29 (.21)	-.32 (.25)
2. Self-esteem <i>family</i> support	-.13 (.15)	-.21 (.16)	-.22 (.16)	0.16 (.15)	-.14 (.17)
3. Informational <i>family</i> support	.43 (.20)	.54 (.21)	.50 (.22)	-.13 (.20)	.18 (.23)
4. Instrumental <i>family</i> support	-.09 (.13)	-.16 (.14)	-.06 (.14)	.05 (.13)	.35** (.15)
5. Emotional <i>friend</i> support	.04 (.21)	.08 (.22)	.11 (.23)	-.06 (.20)	.02 (.25)
6. Self-esteem <i>friend</i> support	-.56** (.19)	-.58** (.19)	-.64** (.20)	.41** (.19)	.11 (.22)
7. Informational <i>friend</i> support	.33 (.19)	.26 (.20)	.40 (.20)	-.13 (.19)	.15 (.22)
8. Instrumental <i>friend</i> support	-.10 (.13)	-.03 (.13)	-.12 (.14)	.09 (.13)	-.08 (.15)
	$R^2=.30$ $F(8,15)=8.40$ $p<.001$	$R^2=.26$ $F(8,15)=7.12$ $p<.001$	$R^2=.23$ $F(8,15)=5.69$ $p<.001$	$R^2=.33$ $F(8,15)=9.57$ $p<.001$	$R^2=.09$ $F(8,15)=1.89$ $p<.001$

* $p<.05$; ** $p<.01$

Discussion

Although the number of prematurely born children in Croatia is increasing (Stanojević, 2016), there is a lack of research on the psychological functioning of their parents. Birth and hospitalization of prematurely born children inevitably lead to emotional stress that is prolonged even during the early years of a child's life.

The aim of the research was to determine the level of stress, anxiety and depression in mothers of prematurely born children, and to determine the relationship between some aspects of social support with maternal well-being (stress, depression, anxiety, life satisfaction, post-traumatic growth). Since a non-clinical population of mothers of premature children participated in this research, the data of descriptive analysis are not surprising, according to which mothers of prematurely born children experience relatively low levels of depression, stress and anxiety. However, although data is only descriptive, the results of this research show that mothers of premature children have a significantly higher degree of depression, anxiety and stress than the population of healthy adults on average (Lovibond & Lovibond, 1995) and in relation to pregnant women and mothers with children up to one year old (Reić Ercegovac & Penezić, 2012). The birth of a preterm child may be stressful due to medical complications and potential long term effects of prematurity. The results in the present study are in line with previous findings in this field (Gambina et al., 2011; Ghorbani et al., 2014; Zanardo, Volpe, Maione, Giustardi, & Straface, 2014) and indicate that mothers of preterm children are at increased psychological risk in the critical period for the establishment of a good mother-infant relationship. The results of this research could be explained by the fact that participants in this research were mothers whose children have developmental difficulties (40% of prematurely born children have some form of developmental problems). The greatest source of stress, especially for the mother, is daily care and treatments (Ljubešić, 2004). Physiotherapy programs and treatments that stimulate overall development, sometimes lead to neglect of the child's basic needs such as warmth and closeness. Namely, in order to create the best development outcomes in the future, the basic needs of the child are sacrificed since the parents primarily have the therapeutic role (Ljubešić, 2004). A methodological explanation for the difference in stress levels is also possible. It may be that only mothers who were still occupied with NICU experience participated in this study (selection bias).

Regarding the results on posttraumatic growth, it is interesting that mothers of premature children in this study are experiencing positive changes after premature labour. The comparison with previous findings suggests that the level of growth after premature birth is higher to those reported after regular childbirth (Sawyer & Ayers, 2009; Sawyer et al., 2015). Although both normative (the birth of a full term child) and stressful events (the birth of premature child) can promote growth, it is possible that a more stressful situation contributes to a higher sense of growth. This is also confirmed by the results of correlation analyses where it was obtained that posttraumatic growth in mothers is negatively associated with gestational age of the child and positively with the days the child spent in the neonatology department ($r = -.21, p < .01$). In summary, stressful circumstances of premature birth and taking care of premature child enable stress-related growth in mothers of premature children. The results of this research are also in line with some previous findings where mothers of premature infants reported higher levels of growth than mothers of either full-term singletons or twins (Spielman & Taubman-Ben-Ari, 2009; Taubman-Ben-Ari, Findler, & Kuint, 2007). The results from the present study indicate that premature birth despite high levels of stress may also result in positive psychological changes which was confirmed by positive correlations of posttraumatic growth and life satisfaction ($r = .23, p < .01$). These findings are even more important if it is considered that there were no studies in Croatia that linked post-traumatic growth with premature birth experience.

Parents of prematurely born children immediately after the birth enter a specific life period that characterizes the processes of accepting the diagnosis, the burden for child's development and growth, fre-

quent visits to doctors, long and demanding rehabilitation processes. For a parent to be successful in his/her role, social support is very important, primarily because of the feeling that in crisis and stressful situations he/she can count on advice, information, material help, or understanding of other people (Laklija, Milić Babić, & Lazaneo, 2016). In this research, the focus was on four types of social support: emotional (giving or receiving love, care and trust), instrumental (providing specific help), informational (advice used to face personal and environmental problems) and self-esteem support (support from persons who have information relevant to self-evaluation) from two different sources; support from family and support from friends. Social support in the stress process has more functions: it can reduce stress experience, it can affect coping strategies and thus modify the relationship between stress and stress outcomes, as well as directly affect the level of adjustment (Hudek- Knežević & Kardum, 2005; Ivanov & Penezic, 2010; Jones et al., 2009; Lazarus & Folkman, 1984).

One of the problems of this research was to determine the correlations of some aspects of social support (emotional support, self-esteem support, informational and instrumental support) with measures of maternal well-being (stress, depression, anxiety, life satisfaction and post-traumatic growth). In line with the assumption of the protective role of social support, mothers of prematurely born children who perceive more social support by family and friends are less depressed, anxious, and perceive lower levels of stress. Furthermore, life satisfaction was associated with both family and friends support. In post-traumatic growth, however, the role of social support by friends is more important (although there are low correlations). When it comes to the results of regression analysis, the perception of depression, stress, anxiety, and life satisfaction is mostly influenced by self-esteem support from friends. Accordingly, mothers who receive more self-esteem support from their friends are more satisfied with their lives, less depressed and anxious, and perceive lower levels of stress. Previous studies have also confirmed that social support contributes to greater self-esteem and perceptions of self-efficacy resulting in reducing the intensity of negative emotional reactions (Teti & Gelfand, 1991). With self-esteem support, emotional support of the family has also been important when it comes to depression. These findings are in line with the findings of research conducted by Weiss & Chen (2002), where a significant relationship between the social support of family and friends with mental health was identified in mothers of prematurely born children. In particular family cohesion, emotional support and a mother's satisfaction with her family contributed positively to her mental health. Previous studies showed that social support was more important for mothers of premature infants than for mothers of full-term infants. More specifically, the lack of social support predicted maternal distress only in mothers of premature infants (Singer, Davillier, Bruening, Hawkins, & Yamashita, 1996). The study conducted by Pinneli (2001) found that social support (from family and friends) was strongly associated to positive adjustment and decreased stress that were either coping or being a first-time parent. Maternal perceptions of poor social support in previous studies were associated to depressive symptoms and higher distress in mothers of sick children (Jessop, Riessman, & Stein, 1990) as well as postpartum women.

The contribution of this research is that it established that of four types of social support (family and friends), the self-esteem support of friends was the most important one. Since the transition to the so-called "preterm parenting" was characterized by emotions of fear, anxiety, helplessness, feelings of failure, and loss of self-esteem, social support focused on self-esteem is essential for parental competence as well as their psychological functioning (Keen, Couzens, Muspratt, & Rodger, 2010). Apart from helping to overcome the challenges of parenting, support to parents of prematurely born children also increases the likelihood that the parents will treat the children in a way that supports their optimum psychosocial development (Ljubešić, 2014). In this regard, the role of friends and the quality of social interaction is particularly emphasized.

According to previous data, younger age, internal locus of control, personality traits, trauma type

and ways of coping are the most relevant correlates of post-traumatic growth (Malada, 2018; Xiaoli et al., 2019). Previous research has also indicated that social support has a significant effect on an individual's ability to perceive benefits following a challenging event (Tedeschi & Calhoun, 1995). In this study, support from friends was significantly and positively associated with levels of growth but only the perception of instrumental support of the family was outlined as a positive predictor. This finding provides support to the importance of supportive relationship with family after premature birth and highlights the role of instrumental help. Social support explains only 9% of the post-traumatic growth. These results are consistent with studies that found a positive association between growth and support (Kinsinger et al., 2006), but despite that 90% of the variance in growth scores remained unaccounted for. This means that more research is needed to clarify other predictors of growth in premature mothers. In previous studies it was shown that the important factors of post-traumatic growth in premature mothers were: the level of threat or stress associated with the length of stay in the hospital, gestational weeks of premature children. Besides the trauma characteristics, some personal characteristics of the parent (personality traits, attachment style) and child (e.g. temperament) (Speilman & Taubman-Ben-Ari, 2009) also proved to be important. Positive correlations were found between the support of grandmothers and the personal growth of mother's (Rozen, Taubman-Ben-Ari, & Strauss, 2017).

The results of this study must be interpreted with several methodological limitations. The correlational design constraints causal inferences regarding the relationship between social support and maternal well-being. The study was conducted on self-selected and highly educated sample (where almost 50% of the mothers of premature children had high qualifications and over 90% estimated that they lived on average or better than the average). The study focused only on support from family and friends; it would be therefore necessary to determine the role of perceived spouse's emotional support. Fathers should be involved in future studies as well as parents who have two or more premature children. Finally, apart from preterm delivery, perinatal complications and social support, there are also other variables that influence maternal well-being that were not measured in this study e.g. some personal characteristics (personality traits, self-esteem, religiosity, coping strategies, individual's basic belief system, mental flexibility), maternal physical health, working status and satisfaction with marriage and work.

Although the data can not be generalized, this research draw attention to the challenges of parenting in the mothers of premature children as well as possible implications for their well-being. This research has shown that informal social support of family and friends plays a vital role in coping with stress among the parents of prematurely born children. Most of today's research focuses on the negative implications that the premature birth has for the psychological functioning of parents. Moreover, data from this research suggest that premature birth can also contribute to positive change in one's beliefs and functioning. Future research should certainly systematically address the specific experiences of parents related to premature birth in order to gain a better insight into their needs and to find adequate support systems important to children and the family. In addition, besides the system of informal support, it is also important to use formal (in the view of a variety of experts) support that should strengthen parents for the care and nurturing of their children after leaving the hospital, or during the child's development. There is a need for longitudinal research that would include parents' experience immediately after birth, and then six or twelve months later. This could provide a better insight into parenting challenges in different critical periods for parents, but would also help evaluate the quality of the available formal and informal support. Unfortunately, the problems encountered by parents of premature children are not sufficiently recognized by the society, and there is often a lack of support from experts (psychologists, social workers and other professionals from related areas) (Laklija et al., 2015). For these reasons, the association "*Preterm Infants Parents Association*" was founded in Croatia for assistance, support and education of parents of prematurely born children.

Conclusion

Mothers of prematurely born children had more symptoms of depression, anxiety and stress compared to the population of healthy adults. Significant negative correlations have been identified for some aspects of social support from family and friends (emotional support, self-esteem support, informational and instrumental support) with measures of depression, anxiety and stress. The opposite pattern of correlation was obtained with measures of life satisfaction and post-traumatic growth. Regression analysis found that the perception of depression, stress, anxiety, and satisfaction with life is mostly contributed by self-esteem support from friends. As a negative predictor of depression, emotional support of the family was also highlighted, while a significant positive predictor of post-traumatic growth was the instrumental support of the family.

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