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## **Sentido de coherencia, teoría de la esperanza e intervención temprana: un estudio longitudinal**

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**Abstract:** Active participation in early intervention programs requires mothers to overcome their distress, to stay actively engaged in the intervention and to focus effort on promoting their children's future. These day-to-day obligations and demands may affect their wellbeing and self-perceptions. A series of studies were performed on an early intervention program in Israel. The goals of the current study were to return to some of the families who participated in the program several years later, in order to examine their perceptions of the early intervention program while comparing personal (hope, sense of coherence and positive affect) and familial (family climate) resources. The sample consisted of 52 mothers of children with special needs who participated in an early intervention program. They were interviewed and assessed twice – during their participation in the program and 5-12 years afterwards. The questionnaires included the hope scale, the sense of coherence, positive affect and family climate variables. The results demonstrated the stability of the mothers' personal and familial resources at the two periods. The relations between the sense of coherence and positive affect were mediated by hope. The conclusions highlighted the stability of mothers' resources, and the importance of the mothers' hope and their early sense of coherence. The educational implications call for embracing hope strategies and empowering parents' personal and familial resources in order to enhance effective early intervention

**Resumen:** La participación activa en los programas de intervención temprana requieren que las madres superen su angustia, participen activamente en la intervención y centren sus esfuerzos en la promoción del futuro de sus hijos. Estas obligaciones y demandas cotidianas pueden afectar a su bienestar y autopercepción. Los objetivos del presente estudio eran volver a algunas de las familias que participaron en un programa de intervención temprana, varios años después, con el fin de examinar sus percepciones sobre el programa de intervención temprana comparando recursos personales (esperanza, sentido de coherencia y afecto positivo) y familiares (clima familiar) durante dos períodos. La muestra se compuso de 52 madres de niños con necesidades especiales que participaron en un programa de intervención temprana. Fueron evaluados dos veces, durante su participación en el programa y entre 5 y 12 años después. Los cuestionarios incluyeron las variables de la escala de esperanza, del sentido de coherencia, del afecto positivo y del clima familiar, además de una pregunta evaluativa. Los resultados demostraron la estabilidad de los recursos personales de las madres en los dos períodos. Además, las relaciones entre el sentido de coherencia durante la participación en el programa y el afecto positivo varios años después, fueron mediadas por la esperanza de las madres (pensamiento de agencia). Las conclusiones resaltaron la estabilidad de los recursos de las madres y la importancia del temprano sentido de coherencia de las madres, así como la capacidad de identificar y alcanzar sus objetivos. Las implicaciones educativas requieren adoptar las estrategias de esperanza y potenciar los recursos personales de los padres con el fin de mejorar la intervención temprana efectiva

**Keywords:** Early intervention; Hope theory; Longitudinal study; Sense of Coherence; Positive affect

**Palabras clave:** Intervención temprana; Teoría de la esperanza; Estudio longitudinal; Sentido de coherencia; Afecto positivo

## 1. Introduction

Mothers of children with special needs experience distress while having to face day-to-day demands, responsibilities and expectations that may affect their wellbeing, happiness and self-perceptions (Lloyd, & Hastings, 2008; Masulani-Mwale, Kauye, Gladstone, & Mathanga, 2018; Miodrag, Burke, Tanner-Smith & Hodapp, 2015). Participating in early intervention programs may also exacerbate these hardships and drain personal resources by adding task-oriented activities to their already demanding, challenging, lives (Brooks-Gunn, Berlin & Fuligni, 2000). Follow-up of mothers revealed that during children's developmental stages, the ongoing impact of having children with intellectually disabled is reflected by their recurrent grief, while coping with the new children's challenges through constructing of a new reality for the child and themselves around the disability (Brown, 2016). Research demonstrated that these daily challenges are mediated by parents' resilience and coping resources (Rajan, Srikrishna, & Romate, 2018). Since the salutogenic paradigm and the hope theory predict mothers' positive affect and happiness, teachers' and caretakers' awareness may empower their ability to fulfill critical roles in the wellbeing and happiness of these families as a whole.

A series of studies (Al-Yagon & Margalit, 2009; Einav, Levi, & Margalit, 2012; Margalit & Kleitman, 2006) already documented maternal emotional experiences during the children's participation in the program. The goals of current study are to examine the consistencies and changes among the mothers' personal resources, while focusing on the predictive factors of sense of coherence and positive affect, through using a longitudinal approach.

### 1.1. Positive and negative affect (PA and NA)

Family studies have often limited their considerations to parents' negative affect and depressive moods (Brown, 2016; Park et al., 2016). However, there is a growing awareness to the unique role of PA as a predictor of effective coping and adjustment during different developmental stages (Barker, Howard, Galambos, & Wrosch, 2016; Clark & Watson, 1988; Mas et al., 2016). The broaden-and-build theory of positive emotions (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009; Fredrickson & Losada, 2005) proposes that positive emotions help people build lasting personal resources that can help them cope with challenges. Studies examined the impact of PA, demonstrating that positive emotions broaden people's awareness in ways that, over time and with frequent recurrence, build personal resources that contribute to effective coping strategies and overall emotional and physical well-being (Fredrickson & Joiner, 2018).

The dual model of affect (Carver & Scheier, 1990) proposed that two separate basic dimensions –PA and NA have differential relations with different life situations. However, recently there has been considerable theoretical interest in the relationships between PA and NA experiences and the extent that they may co-occur (Larsen, Hershfield, Stastny, & Hester, 2017). In an earlier study (Margalit & Ankonina, 1991), parents of children with disabilities differed from parents of typical development children in their negative affect but not in their PA, calling attention to the latter's protective role in well-being. Unlike negative emotions, which often narrow people's thought-action repertoires (e.g., fight or flight), positive emotions broaden people's attention and information processing, enabling flexible, creative thinking, and effective coping strategies (Moskowitz, Shmueli-Blumberg, Acree, & Folkman, 2012). Personal resources such as the sense of coherence and hope may predict PA.

### 1.2. Sense of coherence (SOC)

The SOC comprises the key variable within Antonovsky's (1987) salutogenic health model. This approach reject the dichotomous classification of people as healthy or sick, in favor of their placement on a multidimensional health - disease continuum (Antonovsky, 1987). Antonovsky (1987) defined SOC as a global orientation that expresses the extent to which an individual has a dynamic feeling that (1) their environments are structured, understandable and predictable, (2) required resources are available to meet demands; and (3) these demands are meaningful and important challenges. Studies proposed that parents' SOC may hold unique importance for understanding their coping with different challenges (Margalit, 2012). In several studies, parents

of children with disabilities reported a lower SOC levels compared to parents of typical children (Al-Yagon, 2003; Idan, Braun-Lewensohn, Lindström, & Margalit, 2017; Oelofsen & Richardson, 2006). While the SOC shapes parental self-perceptions and their current coping resources, hope assessment provides parents' future anticipations.

### **1.3. Hope theory**

During stressful periods, people often focus on their current challenges. The hope theory introduces the future perspectives, including beliefs about personal goals' opportunities. Snyder (2002) defined hope as a way of thinking about personal goals and the pathways to reach those goals, along with the activation of the mental energy required to utilize them. The hope theory (Rand, 2018) is composed of two aspects: pathways thinking (the perceived capacity to generate strategies for attaining goals), and agency thinking (perceptions involving one's capacity to initiate and sustain movement along the chosen goals). Unexpectedly, only a few studies examined the hope of parents to children with special needs. In a study on mothers who were participating in an early intervention program (Einav et al., 2012) it was found that those mothers with high levels of SOC, and with high coping strategies, felt more hopeful. In addition, for mothers in families characterized by flexibility and openness to changes in their family climate, their coping approaches served as mediators between their adaptation to environmental changes and hope, focusing attention at the family climate variables.

### **1.4. The family cohesion and adaptation**

Family cohesion and adaptability refers to the familial resources examined in the current study as related to maternal responses to early child intervention programs. Assessment of the family climate is usually performed based on dimensions such as cohesion and adaptation. Family adaptability refers to the family's ability for flexibility, to change in its leadership, role relationships and relationship rules according to varying circumstances or situations. Family cohesion, on the other hand, is the emotional bond that connects family members, representing the levels of affection, friendship, and intimacy shared (Sprenkle, Olson & Russell, 2014). According to Olson's Circumplex Model of Marital and Family Systems (2000), effective, open communication facilitates the way in which families both adapt and remain cohesive during developmental and situational stresses.

Several studies have examined the stress and family climate variables within families with special needs children (Al-Yagon & Margalit, 2009, 2011). A follow-up of participation in the early intervention after a year revealed the joint impact of several factors (Margalit & Kleitman, 2006). The initial stress and the mothers' satisfaction with the intervention program were not the only factors that predict maternal stress. In addition, the mothers' SOC, coping style and family cohesion, assessed at the beginning of the intervention, were also predictors of the stress experience, focusing attention at the important role of family resources in addition to the personal resources (Margalit & Kleitman, 2006).

In conclusion, studies already documented maternal stress reactions, as well as their personal and familial resources following the diagnosis of an infant with special needs and the demanding participation in an early intervention program. We wanted to scrutinize what happen to these mothers after several years, assessing changes and consistencies. Can we identify a critical earlier personal or familial resource that predict maternal wellbeing after several years. Thus, the goals of the current study were to return to some of the families who participated in the program several years later, in order to examine their perceptions of the early intervention program and also to compare personal (hope, SOC and PA) and familial (family climate) resources. We hypothesize that the personal and familial resources will remain relatively stable, and predict maternal PA. In addition, we expect the current hope to mediate the relations between maternal resources (SOC) and the PA as an expression of wellbeing.

## 2. Method

### 2.1. Participants

The sample consisted of 52 mothers who participated in an early intervention program “*Me and my Mommy*” in Jerusalem. The mothers’ ages in the current study were between 29-57 (mean = 44.4, SD = 7.00). 48 mothers were married, 1 divorced. All the mothers were orthodox and no. of children ranged between 1-8 (mean 4.30, SD=2.25).

Gender of children who participated in the program: 29 boys (58%) and 20 girls (42%). During the early intervention program – the children age-range was 1-15 months. During the second assessment their age range was 6-11 years old (mean = 8.80, SD=1.75). The larger group (33 children – 69%) were diagnosed with Down syndrome, 5 (10%) with unspecified developmental delays, and the rest with different disabilities such as CP and preterm babies.

The current children’s independence in performing daily activities such as self-washing, self-dressing, self-eating, toilet control, communication abilities, speech levels and peer relations varied between 1 (completely dependent) to 5 (age-appropriate independence). They scores ranged between mean score 3.08 (SD = 1.20) for self-washing, to mean score 4.47 (SD=1.02) for eating habits. The overall average independence measure ranged from 1.14 to 5.00, mean 3.75, SD = 0.96.

*The early intervention program.* The children had been diagnosed at hospital centers as at risk for delayed development and in need of a comprehensive early intervention program. They participated in the program during 2 years. In line with the program’s emphasis on family empowerment, the comprehensive multidisciplinary intervention was provided to mother-infant dyads, adapted to each infant’s identified developmental needs and tailored to the infant’s level of functioning (e.g., speech therapy, occupational therapy) as well as to the mothers’ support needs. The clinicians meet with dyads of mothers and infants once a week to model developmental tasks, train infants, and instruct mothers to continue the directed activities at home.

### 2.2. Questionnaires

#### **Memories of the early intervention program**

A single open question: When \_\_\_\_\_ was a baby, you participated in the early intervention program. Please share with us what did you learn in this program? The goals of this general question were to explore mothers’ perceptions of their experiences, as well as to clarify major aspects that facilitate their adjustment.

#### **Positive and Negative Affect Scale** (Moos, Cronkite, Billings, & Finney, 1987).

The scale measured the mothers’ view of their affect (“*how you have been feeling in the past month*”) consisting of 20 items on a 5-point Likert scale ranging from Not at all appropriate (1) to Very appropriate (5). The scale comprises two major factors: a PA factor, with 10 items such as “friendly,” “energetic,” and “happy,” and a NA factor with 10 items such as “feel guilty,” “worthless,” or “worried.” Higher scores reflect a higher perceived type of affect.

The reliability and construct validity of the scale were demonstrated by previous studies, which reported Cronbach alphas of .71 for the PA factor and .81 for the NA factor (Al-Yagon, 2007; Margalit & Ankonina, 1991). In the current study, the Cronbach alphas were .92 for the PA factor and .79 for the NA factor.

#### **Sense of Coherence Scale – SOC** (Antonovsky, 1987).

The short version of this self-report scale rates mothers’ sense of confidence in the world; their sense of comprehensibility – feelings that they understood their environment; their sense of manageability and feelings of control; and their sense of meaningfulness and involvement in a variety of areas. The scale consists of 13 items on a 7-point Likert-type scale, ranging from Never (1) to Always (7). For example, statements such as “*Doing the things you do every day*



is....” are rated from descriptors such as “a source of pain and boredom” (1) to “a source of deep pleasure and satisfaction” (7). Higher scores reflect a greater sense of confidence in the world; sense of manageability and feelings of control; and sense of meaningfulness and involvement.

The reliability and construct validity of the scale were demonstrated by previous research (e.g., (Al-Yagon, 2008), which showed a Cronbach alpha of .80. In the current study, the Cronbach alpha was .86.

#### **Hope trait scale (Snyder, 2002).**

The scale consisted of six statements measuring mothers’ belief in their ability to pursue preferred goals, to utilize strategies, and to achieve the desired targets. The scale consisted of a six point Likert-type scale ranging from ‘Never’ (‘1’) to ‘Always’ (‘6’), the scale included two subscales: three agency thinking items (e.g., ‘I’ve been pretty successful in life’) and three pathways thinking items (e.g., ‘When I have a problem, I can come up with many ways to solve it’). Higher scores reflected a greater extent of the descriptor. Cronbach’s alpha for internal consistency in this study was .84.

#### **Family Adaptability and Cohesion Evaluation - FACES III (Olson, 1986).**

The questionnaire measures mothers’ perceptions of the degree of emotional cohesiveness and degree of adaptability and flexibility within their family climate. The scale consists of 20 items, comprising two subscales of 10 items each, rated on a 5-point Likert scale ranging from *Almost never* (1) to *Almost always* (5). The cohesion subscale refers to emotional bonding, family boundaries, and time spent together, reflecting the degree to which family members are connected to or separate from their family (e.g., “Family members feel closer to other family members than to people outside the family”). The adaptability subscale reflects the extent to which the family system is flexible and open to changes (e.g., “We shift household responsibilities from person to person”). Higher scores reflect a greater extent of mothers’ perceptions of the emotional cohesiveness and degree of adaptability within the family.

The reliability and construct validity of the scale were demonstrated by previous research (Al-Yagon, 2003), which indicated Cronbach alphas of .85 for the cohesion subscale and .67 for the adaptability subscale. In the current study, the Cronbach alphas were .73 for the cohesion subscale and .72 for the adaptability subscale.

### **2.3. Procedure**

Data was collected as part of a larger early intervention research, following the approval of the Ethical Committee. In the original sample - 180 mothers - participated in the study while their infants participated in the early intervention program. The data was collected during 3 years. A member of the research team presented the questionnaires to the mothers individually (Paper and pencil) and provided additional help if necessary. Mothers completed the instruments in a quiet room in the center. For the current assessment, 5 to 10 years later, letters were sent to all the participants, based on their available address. Only 52 mothers answered and agreed to participate in the study. Thus, the study provides the current experience of the 52 mothers. Since some of the data was lost due to changes in the center location, comparisons between the two periods were available only for 36 mothers.

## **3. Results**

### **3.1. Content analysis**

In the first stage of analysis, the answers to the question regarding mothers’ memories of the early intervention program were examined. Following this content analysis, mothers’ answers can be divided into two major themes: The first focus was appreciation to the guidance provided related to the developmental promotion of the child, such as learning effective approaches to promote the child’s development. A mother of a 9 years old girl wrote: “it gave me methods and

ideas how to work with my child and teach her life skills. Currently she is in full inclusion, has many friends and participates in her class activities". The second focus was related to the emotional support provided to the parents, or more specifically: "Learning to be happy, to smile". Example quotes were: "When I was told that he is a special child, I thought what will be, how can I be happy with my life and with my child. They taught me how to be happy with my special child... It gave me the power to continue life and cope with coming difficulties", "It provided light and hope to our life". "We saw older children learning skills – and it gave hope". These themes that focused on promotion of PA and on hope and future perspectives were further examined in the quantitative analysis.

### 3.2. Quantitative analysis

First, in order to explore the associations among research measures, we performed paired - Pearson Correlations and paired t-tests between the two periods. The means, SDs and are presented on Table 1. Significant correlations between assessments in the different periods were found between the personal resources measures: SOC, affect and hope, but not for the family measures (Family adaptation and cohesion). No significant differences were found between the two periods using paired t-tests. We performed a series of comparisons using MANOVA with repeated measures between periods with the gender of the child as the independent variable and the different measures as the dependent variables. No significant differences were found between periods in all the research measures, and no significant interactions. Significant correlations between assessments in the different periods were found between the personal resources measures: SOC, affect and hope, but not for the family measures (Family adaptation and cohesion). No significant differences were found between the two periods using paired t-tests.

**Table 1.**

Means, SDs, Paired–Correlations and paired-t tests of the personal and familial variables

Variable	Before	After	Correlations	Paired t-tests
Positive Affect	3.79 (0.73)	3.83 (0.86)	.33*	-0.28
Negative Affect	2.03 (0.65)	1.92 (0.57)	.47**	1.08
SOC <sup>1</sup>	5.29 (0.72)	5.36 (0.83)	.51**	-0.67
Hope (Agency Thinking)	4.31 (0.67)	4.40 (0.80)	.48**	-0.65
Hope (Pathways Thinking)	4.05 (0.74)	4.16 (0.94)	.53**	-0.71
Family Cohesion	4.21 (0.43)	4.10 (0.52)	.16	1.14
Family Adaptation	2.62 (0.36)	2.60 (0.56)	.24	0.21

<sup>1</sup> SOC – Sense of Coherence  
\*p<.05, \*\*p<.01

We performed a series of comparisons using MANOVA with repeated measures between periods with the gender of the child as the independent variable and the different measures as the dependent variables. No significant differences were found between periods in all research measures, and no significant interactions.

### 3.3. Longitudinal predictors of positive mood

In order to examine if the personal and family resources in the past (during the program participation) predicted current positive mood, and the role of current hope, a multiple hierarchical regression was performed with current positive mood serving as the criterion variable. At the first step, mothers' current age and the PA during the time that they participated in the program were entered into the model as control variables, explaining 12.0% of the variable. At this stage, the PA in the past was a significant predictor of the PA in the present. At the second step, the measures from the past assessment - the two family measures, and the SOC were entered as predicting variables, reaching 27.5% of the variable. At this stage, only the mothers' SOC was a significant predictor. The past PA lost its significance. In the third step, agency thinking and hope pathways thinking entered, adding 25.8% to the explanation (see

Table 2). Only the past SOC and current agency thinking variable were significant predictors (positive relationships). The remaining variables (including pathways thinking) were not significant. The results of this analysis indicated that the mothers' SOC during the early intervention participation and the current agency thinking predicted the present PA. The results of the regression analysis emphasized the importance of the SOC as a measure of coping resources and agency thinking as a hope subscale of identifying future goals in predicting positive maternal affect. In order to further clarify the interrelations between the predicting factors, serial multiple mediation analysis was performed.

**Table 2.**

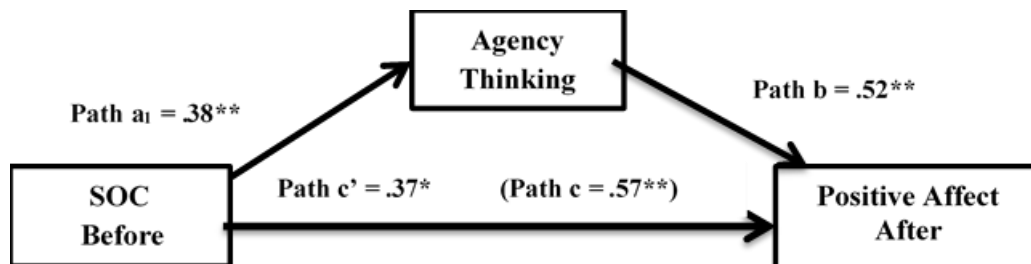
Summary of Hierarchical Regression Analysis for two periods (past and current measures) of mothers' SOC and family climate variables as predictors of the mean positive affect

Variable	Step 1			Step 2			Step 3		
	B	SE B	$\beta$	B	SE B	$\beta$	B	SE B	$\beta$
Mother's age	-0.01	0.02	-.11	-0.02	0.02	-.12	-0.01	0.02	-.06
Positive Affect before	0.43	0.20	.36*	0.09	0.23	.07	-0.42	0.23	-.35
SOC Before				0.62	0.25	.52*	0.58	0.21	.48**
Family Cohesion Before				- 0.35	0.36	-.16	0.04	0.32	.02
Family Adaptation Before				0.12	0.38	.05	-0.06	0.32	-.02
Hope: Pathways Thinking							0.02	0.24	.02
Hope: Agency Thinking							0.72	0.29	.67*
R <sup>2</sup>			.120			.275			.533

Note: SOC Before – Sense of Coherence during the early intervention program  
\*p<.05; \*\*p<.01

### 3.4. Serial multiple mediation analysis

The Serial Multiple Mediation analysis used a bootstrapping method with bias-corrected confidence estimates (MacKinnon, Lockwood, & Williams, 2004; Preacher & Hayes, 2004). In the current study, 95% confidence interval of the indirect effects was obtained with 10000 bootstrap resamples (Preacher & Hayes, 2004).



**Figure 1.** A mediation model for Sense of coherence during early intervention (SOC Before) and current positive affect (Positive Affect After)

Note. \*p<.05, \*\*p<.01  
R<sup>2</sup>= .22 . MSE =.58 F(1,39) = 10.65\*\*

First it was found that SOC during participation in the program was positively associated with current PA (B =0.66, SE =0.13 t=5.21, p = .01). It was also found that the past PA was positively related to current pathways thinking (B=0.96, SE=0.24, t = 4.00, p =.01). In addition, the



pathways thinking was positively related with current agency thinking ( $B=0.66$ ,  $SE = 0.10$ ,  $t = 7.56$ ,  $p = .01$ ). The current PA was predicted by current agency thinking ( $B=0.47$ ,  $SE = 0.20$ ,  $t= 2.30$ ,  $p = .05$ ) and by the past SOC ( $B = 0.47$ ,  $SE = 0.18$ ,  $t=2.58$ ,  $p=.015$ ). Figure 1 presents the mediation model.

#### 4. Discussion

Despite the growing theoretical and experimental emphasis on the resources that may help families bounce back or recover from adversity, empirical investigations of coping reactions of parents of children with disabilities have traditionally focused on the negative reactions that parents of children with disabilities might experience (Miodrag, et al., 2015). Parents' initial reactions to having a child with a disability is usually associated with negative feelings such as anxiety, shock, despair, avoidance, anger, guilt, and helplessness (Park et al., 2016). However, long-term impact of a highly challenging event, such as having a child with disability on a family depends on several factors including both personal and familial resources. The purpose of this study was to examine several personal resources, extending for nearly a decade, that may assist mothers of children with special needs who participated in an early intervention program overcome.

Family resilience theories suggest that family crises can become an opportunity for priorities reappraisal and the development of meaningful relationships and personal resources (Walsh, 2015; Boss, Bryant & Mancini, 2016). Along with this premise, the current study examined resources deriving from the salutogenic health model and the hope theory in an effort to understand what elicits PA and hopeful thinking within these families.

When examining the personal resources suggested in this study, results first indicated the stability over time in these measures as demonstrated by the positive correlations between the two assessments of mothers' SOC, PA and hopeful thinking. This pattern of results solidifies the stability of the mothers' central resources, demonstrating how the ability to perceive ones' environment as structured, understandable and predictable, to initiate and sustain movement along chosen goals and to sustain positive emotions despite obstacles, are all relatively stable resources as no changes between years were found. These findings shed light as to the importance of identifying and bolstering parental personal resources as early as possible, due to their tendency to remain stable across a period of several years, predicting future wellbeing and PA. The correlations between the assessments of family cohesion and adaptability measure were not significant although no significant differences were found. Therefore, it seems that family climate was not as stable as the personal resources, presumably highlighting other factors, exceeding the individuals' control, effecting this variable.

Additional analysis indicated that past SOC, as well as the hope variables: current Pathways thinking and agency thinking are both predictors of current maternal PA. Therefore, the ability of mothers, to perceive themselves capable to cope effectively with challenges is a stable characteristic, and, together with their ability to plan their strategies, to cope with barriers predict their global perception in their ability to set further goals as they move forward – all contribute to dominant positive emotions that allow them to broaden their attention and information processing, enabling flexible and creative thinking. This result emphasizes the continues nature of this process of dealing with a child with special needs, calling into attention both self beliefs as well as future hopes in order to achieve growth and constructive emotional well-being.

In addition, the differentiation between the subscales of hope theory: pathways and agency thinking, further our understanding to their differential contribution. The maternal SOC during the early developmental stages of their infants, while controlling their early PA, predicted the mothers' current beliefs in their ability to succeed in making specific plans for reaching future goals (pathways thinking). This ability supports their beliefs in themselves as active agents in pursuing goals to a better future (agency thinking), resulting in their PA as an indicator of adjustment.

Taking into account all these findings, this study suggests that although it is important to be aware of the challenges and negative emotional reactions that parents of children with disabilities might experience, sensitizing educational teams to their value and promoting factors that contribute to adjustment and psychological well-being of parents is crucial in terms of providing meaningful help to families with children with disabilities. Although considerable research investigated the negative consequences of having a child with a disability, a significant gap continues to exist in empirical literature investigating the factors that foster parents' adjustment to raising a child with a disability. This study aims to minimize this gap by identifying important personal resources such as sense of coherence thinking that can predict, up to several years later, the ability of mothers to sustain and preserve their hope as well as a sense of PA, despite the challenges faced with in their everyday lives. One may speculate that these effects could have been made possible by the emotional support and intervention approaches provided and cherished by the majority of mothers who undertook the early intervention programs.

Contrary to previous research, both past and present family adaptability and cohesion did not predict the PA of the mothers. Although several studies (e.g., Higgins, Bailey & Pearce, 2005; Laghi et al., 2018) emphasized that family adaptability and cohesion may be an important variable that fosters the adjustment of families especially during crises, it was not demonstrated in the current study. Maybe, in this context, family climate was not a predictive factor several years later, since the developmental challenges of the children change during these years thereby affecting family life quality. Future studies have to further examine the role of the child developmental stages as related to family dynamics throughout the years and their reflected outcomes in terms of the emotional status of mothers.

The present study has a number of limitations that need to be taken into consideration when interpreting these findings. First, all instruments were self-reported therefore, results may have been affected from mono-method bias. In addition, only a partial percentage of participating mothers agreed to participate in the current study. Therefore, the participants of this study may not be representative of all the mothers who participated in the early intervention programs and generalizations based on these current results should be made with caution. Finally, when considering the longitudinal effects of early intervention programs, it might have been valuable to track a group of mothers of children with special needs who did not participate in these type of programs, thereby differentiating the effects of the mere time passage from program long lasting results.

Nonetheless, this study results provide support for the vast growing theoretical literature on personal resilience by highlighting mothers' capacity to rebound from adversity and become more strengthened and resourceful. These results become even more critical when taking into account the longitudinal nature of this study, examining intervention long term outcomes 5 to 10 years after program completion.

## 5. References

- Al-Yagon, M. (2003). Children at-risk for developing learning disorders: Multiple perspectives. *Journal of Learning Disabilities*, 36(4), 318-335. doi: 10.1177/00222194030360040401
- Al-Yagon, M. (2007). Socioemotional and behavioral adjustment among school-age children with learning disabilities: The moderating role of maternal personal resources. *Journal of Special Education*, 40(4), 205-218. doi: 10.1037/e625792009-001
- Al-Yagon, M. (2008). Maternal personal resources and children's socioemotional and behavioral adjustment. *Child Psychiatry and Human Development*, 39(3), 283-298. doi: 10.1007/s10578-007-0088-z
- Al-Yagon, M., & Margalit, M. (2009). Positive and negative affect among mothers of children with intellectual disabilities. *The British Journal of Developmental Disabilities*, 55(2), 109-127. doi: 10.1179/096979509799103070
- Al-Yagon, M., & Margalit, M. (2011). Children with Down syndrome: Parents' Perspectives. In J. A. Burack, R. M. Hodapp, G. Iarocci, & E. Zigler (Eds.), *The Oxford handbook of*

- intellectual disability and development* (pp. 349-365). New York: Oxford University press. doi: 10.1093/oxfordhb/9780195305012.001.0001
- Antonovsky, A. (1987). *Unraveling the mystery of health*. San Francisco: Jossey-Bass.
- Barker, E. T., Howard, A. L., Galambos, N. L., & Wrosch, C. (2016). Tracking affect and academic success across university: Happy students benefit from bouts of negative mood. *Developmental Psychology*, 52(12), 2022-2030. doi: 10.1037/dev0000231
- Boss, P., Bryant, C. M., & Mancini, J. A. (2016). *Family Stress Management: A Contextual Approach*. CA: Sage Publications.
- Brooks-Gunn, J., Berlin, L. J., & Fuligni, A. S. (2000). Early childhood intervention programs: What about the family? In J. P. Shonkoff & S. J. Meisels (Eds.), *Handbook of early childhood intervention* (pp. 549-588). New York, NY,: Cambridge University Press. doi: 10.1017/cbo9780511529320.026
- Brown, J. M. (2016). Recurrent grief in mothering a child with an intellectual disability to adulthood: grieving is the healing. *Child & Family Social Work*, 21(1), 113-122. doi: 10.1111/cfs.12116
- Carver, C. S., & Scheier, M. F. (1990). Origins and Functions of Positive and Negative Affect: A Control-Process View. *psychological Review*, 97(1), 19-35. doi: 10.1037//0033-295x.97.1.19
- Clark, L. A., & Watson, D. (1988). Mood and the mundane: Relations between daily life events and self-reported mood. *Journal of Personality and Social Psychology*, 54(2), 296-308. doi: 10.1037//0022-3514.54.2.296
- Cohn, M. A., Fredrickson, B. L., Brown, S. L., Mikels, J. A., & Conway, A. M. (2009). Happiness unpacked: Positive emotions increase life satisfaction by building resilience. *Emotion*, 9(3), 361-368. doi: 10.1037/a0015952
- Einav, M., Levi, U., & Margalit, M. (2012). Mothers' coping and hope in early intervention. *European Journal of Special Needs Education*, 27(3), 265-280. doi: 10.1080/08856257.2012.678662
- Fredrickson, B. L., & Joiner, T. (2018). Reflections on positive emotions and upward spirals. *Perspectives on Psychological Science*, 13(2), 194-199. doi: 10.1177/1745691617692106
- Fredrickson, B. L., & Losada, M. F. (2005). Positive affect and the complex dynamics of human flourishing. *American Psychologist*, 60(7), 678-686. doi: 10.1037/0003-066x.60.7.678
- Higgins, D. J., Bailey, S. R., & Pearce, J. C. (2005). Factors associated with functioning style and coping strategies of families with a child with an autism spectrum disorder. *Autism*, 9(2), 125-137. doi: 10.1177/1362361305051403
- Idan, O., Braun-Lewensohn, O., Lindström, B., & Margalit, M. (2017). Salutogenesis: Sense of Coherence in Childhood and in Families. In M. B. Mittelmark, S. Sagy, M. Eriksson, G. F. Bauer, J. M. Pelikan, B. Lindström & G. A. Espnes (Eds.), *The Handbook of Salutogenesis* (pp. 107-121). Switzerland: Springer International Publishing. doi: 10.1007/978-3-319-04600-6
- Laghi, F., Lonigro, A., Pallini, S., Bechini, A., Gradilone, A., Marziano, G., & Baiocco, R. (2018). Sibling relationships and family functioning in siblings of early adolescents, adolescents and young adults with autism spectrum disorder. *Journal of Child and Family Studies*, 27(3), 793-801. doi: 10.1007/s10826-017-0921-3
- Larsen, J. T., Hershfield, H. E., Stastny, B. J., & Hester, N. (2017). On the relationship between positive and negative affect: Their correlation and their co-occurrence. *Emotion*, 17(2), 323-336. doi: 10.1037/emo0000231
- Lloyd, T., & Hastings, R. P. (2008). Psychological variables as correlates of adjustment in mothers of children with intellectual disabilities: Cross-sectional and longitudinal relationships. *Journal of Intellectual Disability Research*, 52(1), 37-48. doi:doi:10.1111/j.1365-2788.2007.00974.x
- MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research*, 39(1), 99-128. doi:10.1207/s15327906mbr3901\_4
- Margalit, M. (2012). *Lonely children and adolescents: Self perceptions, social exclusion and hope*. New York: Springer. doi:10.1007/978-1-4419-6284-3

- Margalit, M., & Ankonina, D. B. (1991). Positive and negative affect in parenting disabled children. *Counselling Psychology Quarterly*, 4(4), 289-299. doi: 10.1080/09515079108254437
- Margalit, M., & Kleitman, T. (2006). Mothers' stress, resilience, and early intervention. *European Journal of Special Needs Education*, 21(3), 269-284. doi: 10.1080/08856250600810682
- Mas, J. M., Baqués, N., Balcells-Balcells, A., Dalmau, M., Giné, C., Gràcia, M., & Vilaseca, R. (2016). Family quality of life for families in early intervention in Spain. *Journal of Early Intervention*, 38(1), 59-74. doi: 10.1177/1053815116636885
- Masulani-Mwale, C., Kauye, F., Gladstone, M., & Mathanga, D. (2018). Prevalence of psychological distress among parents of children with intellectual disabilities in Malawi. *BMC Psychiatry*, 18, 146. doi:10.1186/s12888-018-1731-x
- Miodrag, N., Burke, M., Tanner-Smith, E., & Hodapp, R. M. (2015). Adverse health in parents of children with disabilities and chronic health conditions: a meta-analysis using the Parenting Stress Index's Health Sub-domain. *Journal of Intellectual Disability Research*, 59(3), 257-271. doi:10.1111/jir.12135
- Moos, R. H., Cronkite, R. C., Billings, A. G., & Finney, J. W. (1987). *Revised health and daily living form manual*. Palo Alto, CA: Veterans Administration and Stanford University Medical Centers.
- Moskowitz, J. T., Shmueli-Blumberg, D., Acree, M., & Folkman, S. (2012). Positive affect in the midst of distress: Implications for role functioning. *Journal of Community & Applied Social Psychology*, 22(6), 502-518. doi: 10.1002/casp.1133
- Oelofsen, N., & Richardson, P. (2006). Sense of Coherence and parenting stress in mothers and fathers of preschool children with developmental disability. *Journal of Intellectual & Developmental Disability*, 31(1), 1-12. doi: 10.1080/13668250500349367
- Olson, D. H. (1986). Circumplex model VII: Validation studies and FACES III. *Family Process*, 26, 337-351. doi: 10.1111/j.1545-5300.1986.00337.x
- Olson, D. H. (2000). Circumplex model of marital and family systems. *Journal of Family Therapy*, 22(2), 144-167. doi: 10.1111/1467-6427.00144
- Park, H. R., Lee, J. M., Moon, H. E., Lee, D. S., Kim, B. N., Kim, J., ... & Paek, S. H. (2016). A short review on the current understanding of autism spectrum disorders. *Experimental neurobiology*, 25(1), 1-13. doi: 10.5607/en.2016.25.1.1
- Preacher, K., & Hayes, A. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, 36(4), 717-731. doi:10.3758/BF03206553
- Rajan, A. M., Srikrishna, G., & Romate, J. (2018). Resilience and locus of control of parents having a child with intellectual disability. *Journal of Developmental and Physical Disabilities*, 30(3), 297-306. doi: 10.1007/s10882-018-9586-0
- Rand, K. L. (2018). *Hope, self-efficacy, and optimism: Conceptual and empirical differences*. In M. W. Gallagher & S. J. Lopez (Eds.), *The Oxford Handbook of hope* (pp. 45-58). NY: Oxford University Press. doi: 10.1093/oxfordhb/9780199399314.001.0001
- Snyder, C. R. (2002). Hope theory: Rainbows in the mind. *Psychological Inquiry*, 13(4), 249-275. doi: 10.1207/S15327965PLI1304\_01.
- Sprenkle, D. H., Olson, D., & Russell, C. S. (2014). *Circumplex model: Systemic assessment and treatment of families*. London: Routledge.
- Walsh, F. (2015). *Strengthening family resilience*. NY: Guilford Publications.