

Positive interventions in seriously-ill children: Effects on well-being after granting a wish

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Abstract

We examined whether a positive intervention (i.e. granting a wish) could promote positive psychological and physical changes (e.g. reduced nausea and pain) in seriously-ill children. Children and their parent were randomly assigned to a wish group (completed measures 2–3 days before the wish and 3 weeks later) or to a waiting-list control group (with an equivalent time-lag and receiving the wish after the assessment). Wish intervention significantly increased levels of positive emotions, satisfaction with life, personal strengths, and reduced rates of nausea compared with the control group. Mothers in the wish group also perceived positive changes in children's benefit finding and quality of life.

Keywords

benefit finding, childhood cancer, positive affect, positive intervention, quality of life, satisfaction with life

Introduction

The onset of a serious illness and the subsequent periods of hospitalization are recognized as negative life events that may be potentially traumatic for children (Phipps et al., 2007). Diagnosis procedures and lengthy treatments may have negative implications on patients' quality of life (Hedström et al., 2004). Moreover, although survival rates have been increased through the use of improved treatments, nausea and pain are still among the most prevalent symptoms in hospitalized children with cancer (Miller et al., 2011). Thus, there is a growing interest in assessing and promoting the well-being and quality of life among children with life-threatening illnesses (Klassen et al., 2011).

However, most of the studies are usually based on the idea that good quality of life is the

absence of symptoms (Varni et al., 2007). This approach focuses on psychological difficulties or distress associated with illness while ignoring some positive factors that may also promote well-being and ultimately improve treatment outcomes (Hedström et al., 2004). Thus, positive interventions should aim to do more than just reduce negative symptoms (e.g. anxiety or depressive symptoms) or buffer the negative effects of the stress event on well-being. They

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may also promote positive responses such as positive emotions (PE) or personal growth, or build positive psychological resources (Tugade and Fredrickson, 2002).

Research on well-being has thus far been adult-centric and hedonism-centric (Diener and Lucas, 1999; Ryff, 2014). However, current research from a positive perspective has yielded several constructs that are particularly relevant in life-threatening illness research: positive affect (Pressman and Cohen, 2005), satisfaction with life (Diener and Chan, 2011), eudaimonic well-being (Ryff et al., 2004), benefit finding (Phipps et al., 2007), beliefs in a just world (Park et al., 2008), dispositional optimism (Carver and Scheier, 2001), or personal strengths (Peterson et al., 2006). Most of these constructs have been broadly studied in adults, but less so in pediatric research.

Based on the assumption that well-being is associated with the mental and physical health of patients, there has been a rapid growth of interventions in pediatric settings (Koller and Gryski, 2008). A paradigmatic example is wish-granting interventions, which have the aim of fulfilling a wish expressed by the ill child. Unfortunately, there are no controlled studies that have evaluated the efficacy of granting wishes to children with a life-threatening illnesses. Interestingly, some studies have shown positive outcomes after clown interventions for hospitalized children. These findings suggest a decrease in the child's and the parent's distress and an increase in children's cooperation with medical procedures (Costa and Arriaga, 2010; Vagnoli et al., 2007). However, it is not clear as to whether these positive outcomes are generalizable to wish-based interventions. Granting a wish is a distinctive intervention as it taps not only hedonic components of well-being but may also satisfy children's psychological needs (Bornstein et al., 2003) and, therefore, could have a more sustained effect than episodic hedonic interventions. Recent research has shown that well-being is a multifaceted construct (e.g. Hervás and Vázquez, 2013), and thus, a variety of different approaches should be combined in order to better understand it.

Specifically, this intervention could exert its effects on three domains: subjective well-being (positive and negative emotions, general life satisfaction, multidimensional life satisfaction, and general quality of life), psychological resources (benefit finding, beliefs in the benevolence of the world, personal strengths, and optimism), and clinical outcomes (depression and health-related quality of life).

The aim of this research is to investigate whether granting wishes promotes positive psychological responses and positive physical changes (i.e. reductions in pain and nausea) in children with a life-threatening illness. Based on a well-established wish-granting program, we designed a study that could provide an adequate control group to compare the effects of this naturalistic intervention. First, we hypothesized that children in the wish group would report less negative emotions (NE), more positive emotions (PE), higher levels of life satisfaction, and higher general quality of life than children in the waiting-list control group. Second, we also hypothesized that the wish would concurrently improve psychological resources (i.e. benefit finding, beliefs in the benevolence of the world, optimism, personal strengths). Third, given the previous evidence that links well-being with better health (Diener and Chan, 2011) and given the recent findings supporting complementary and alternative therapies for managing physical symptoms (Karagozoglu et al., 2013), we expected that fulfilling a wish would have positive consequences for children's perceived health. Finally, since parents are potentially valuable sources of information about the well-being of children with chronic illness, we also expected that parents in the wish group would perceive more positive changes in their children's well-being than parents in the control group.

Methods

Participants

Children and their parents recruited in hospitals were invited to participate in our study.

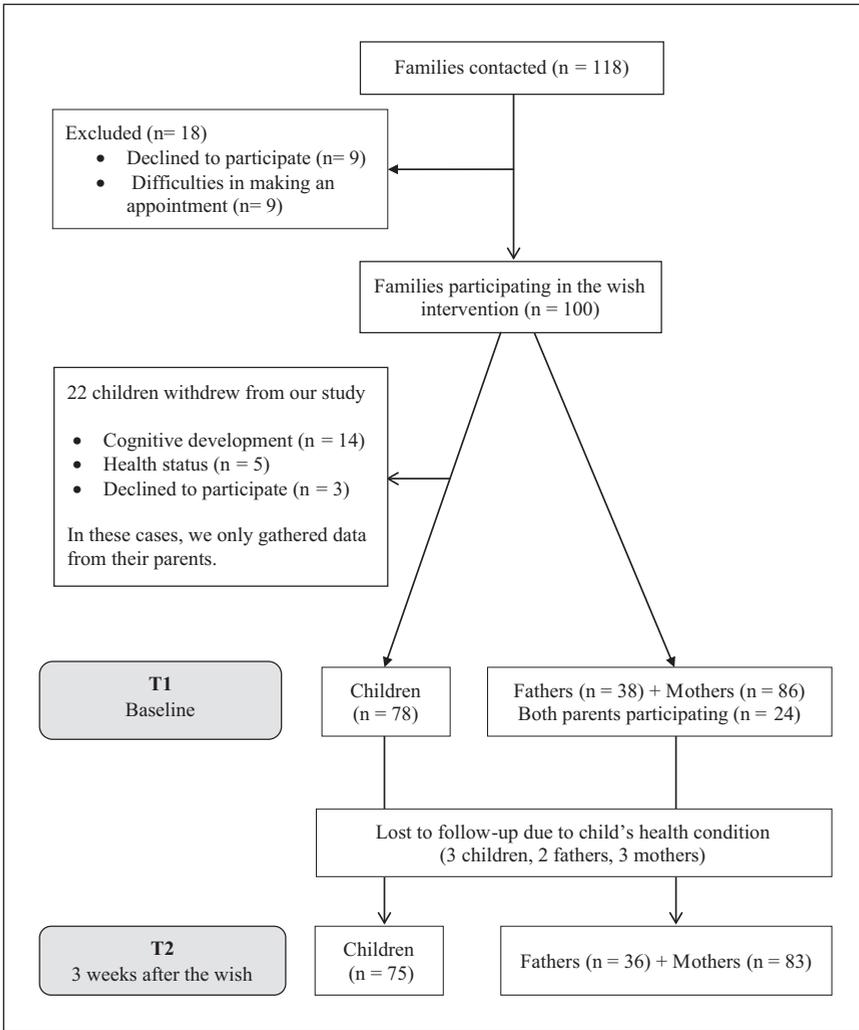


Figure 1. Participant flow diagram describing recruitment process.

A participant flow diagram describing the recruitment process is presented in Figure 1. Finally, seventy-eight children with severe physical illnesses participated in the study. Children ages ranged from 5 to 18 years (mean: 11.68; standard deviation (SD): 3.39 years). All children were Caucasian and 45 children were males (57.7%).

Moreover, 38 fathers and 86 mothers were also interviewed. The mean age was 43.08 and 40.75, respectively. Among them, 80.4 percent are married or living with partner. Of fathers,

73.7 percent and of mothers, 48.2 percent are working.

Procedure

All participants were involved in a wish-granting program.¹ Parents were contacted and informed about this study. Those who agreed to participate signed an informed consent. Children also provided verbal consent to participate in the study, which was presented as a study on well-being. Once they agreed to participate, children

and their parents were randomly assigned before assessment to one of the two groups: the wish group or a waiting-list control group. A timeline with the procedure design is presented in Supplementary Figure 1. Children and parents from the wish group completed self-report measures at Time 1 (T1: 2–3 days before fulfilling the wish) and at Time 2 (T2: 3 weeks after fulfilling the wish). All measures were used at both T1 and T2. The waiting-list control group was assessed following an equivalent time-lag. Children in the control group received the wish after the assessment. T2 questionnaires were completed by 75 children, 36 fathers, and 83 mothers (96%, 95%, and 96% of T1 participants, respectively). There were no significant differences in any of the main characteristics of the sample between those who completed the second measure and those who did not (all $p > 0.05$).

In order to ensure that the children understood the scales' response format, we used different strategies: (1) we incorporated a pre-test protocol to determine the cognitive competence of participants to use and understand Likert-format scales (Cummins and Lau, 2005). Children under 8 were trained (when needed) in ordering magnitudes, scaling concrete objects and scaling abstract references (i.e. emotion faces). Whenever children showed any problem with Likert-format scales, we used a reduced-choice format; (2) for some questionnaires (e.g. quality of life scales), we used age group versions (ages 5–7; ages 8–12; ages 13–18). They are parallel forms with minor differences in the test instructions and wording which are structured to be more appropriate for young children, children, and teens. For instance, young children version (ages 5–7) used a reduced-choice Likert-format scale and visual aids (i.e. faces); (3) furthermore, to maximize the children's understanding of the multiple response options, we also used visual cards and thermometer images so that children could physically point out their answer if needed. The thermometer scale option has shown a good reliability for children below 9 years of age

(Cremeens et al., 2007). Finally, instruments were administered verbally when needed.

Measures

To explore a wide array of dimensions related to well-being, participants completed a number of questionnaires.²

Subjective well-being

Positive and negative emotions (Positive and Negative Emotional Style Scale, PNES; Cohen et al., 2006). It contains 12 adjectives (six positive and six negative). It was complemented with 10 additional positive adjectives to cover a wider spectrum of emotional relevant responses (e.g. grateful, safe, hopeful) and four negative adjectives related to loneliness and tiredness (Pressman and Cohen, 2012). Children were asked to what extent (0 = "nothing" to 4 = "extremely") they felt each emotion on the day of the assessment. In the current sample, both the PE scale ($\alpha = .92$) and the NE scale ($\alpha = .87$) showed strong internal consistency.

General Life Satisfaction (The Student Life Satisfaction Scale, SLSS; Huebner, 1991) consists of seven items measuring overall satisfaction with life (e.g. "In my life things are going well"). Items are answered on a 4-point Likert-type scale ranging from 0 = "never" to 3 = "almost always". Internal consistency was $\alpha = .78$.

Domains of Life Satisfaction (The Brief Multidimensional Students' Life Satisfaction Scale, BMSLSS; Seligson et al., 2003). This scale assesses six different aspects of life such as family, school, personal relationships, self-esteem, neighborhood, and general satisfaction. We also included 11 additional relevant dimensions (e.g. standard of living, health, life achievements, and personal safety) from the *Personal Well-being Index* (Cummins and Lau, 2005). Each item was answered on a 10-point Likert-type scale ranging from 0 = "lowest level of

satisfaction” to 10=“highest levels of satisfaction”.

General Quality of life. We used *The Pediatric Quality of Life Scale, PedsQoL* (Varni et al., 2002), a 23-item scale to assess quality of life in children and adolescents. We used two parallel forms: a patient self-report and parent proxy-report instrument (Varni et al., 2007). This questionnaire assesses how often in the past month (from 0—“never” to 4—“almost always”) children have had problems in the physical, social, school, and emotional domains. Items were inverted. Cronbach’s alphas were .89, .84, and .87 for children, fathers, and mothers, respectively. The intra-class correlation coefficient was .82 for father–child agreement and .71 for mother–child agreement.

Psychological resources

Benefit finding. *The Benefit Finding Scale for Children, BFSC* (Phipps et al., 2007) includes 10 items (e.g. *Having had my illness has helped me become a stronger person*) depicting potential benefits of the illness rated on 5-point Likert-type scales (1=“not true at all” to 5=“very true for me”). Parents also completed a version with items related to their children (e.g. *This illness has helped my child become a stronger person*). The level of internal consistency was $\alpha=.90$ for children, $\alpha=.85$ for fathers’ report, and $\alpha=.87$ for mothers’ report. The intra-class correlation coefficient for father–child agreement was .11 and .43 for mother–child agreement. The intra-class correlation coefficient for father–mother agreement was .45.

Beliefs in the benevolence of the world. We created a 10-item *Beliefs in the Benevolence of the World Scale* based upon Janoff-Bulman’s (1989) model. It includes items assessing beliefs of living in a benevolent and just world (e.g. *There are more good people than bad people in the world*). Each item is answered on a 5-point Likert-type scale ranging from 0 (“not true at all”) to 4

(“very true for me”). In our study, the level of internal consistency was $\alpha=.74$.

Optimism. The Youth Life Orientation Test, *YLOT* (Ey et al., 2005) is a measure of dispositional optimism for children. The 16-item measure (with two filler items) contains seven optimism and seven pessimism items, using a 5-point rating scale ranging from 0 (“strongly disagree”) to 4 (“strongly agree”). We added one item specifically related to the child’s illness (i.e. *I think I am going to recover from my illness*). Cronbach’s alpha for optimism was .79 and for pessimism .77.

Personal Strengths. *The Values in Action Inventory of Character Strengths for Youth, VIA-Y* (Park and Peterson, 2006) is a 198-item scale that allows for the evaluation of 24 personal strengths. In order to keep the protocol as short as possible, we selected strengths (i.e. love, vitality, gratitude, love of learning, and perseverance) that have shown the highest correlations with LS in a large sample of children ($N=1200$) with similar demographic characteristics (Gimenez, 2010). The resulting scale contains 25 items. We used the highest-loading items on each scale. Each item is answered on a 5-point Likert-type scale ranging from 1 (“not true at all”) to 5 (“very true for me”). Levels of internal consistency of subscales were $\alpha=.56$, .78, .84, .73, and .76, respectively.

Clinical outcomes

Health-related quality of life. We used *The Health-Related Pediatric Quality of Life Scale, HPedsQoL* (Varni et al., 2002), a 27-item scale to assess health-related quality of life in children and adolescents with an illness. As with the General Quality of Life Scale, we used a children self-report version and a parent proxy-report version. This scale assesses how often in the past month children have experienced different problems related to their disease (e.g. concerns about their physical appearance). Here we report data on the only two physical health subscales: pain

and nausea (assessed by using a 5-point Likert-type scale ranging from 0—"never" to 4—"almost always"). Items were inverted. Cronbach's alphas were .86, .88, and .87 for children, fathers, and mothers, respectively. The intra-class correlation coefficient was .59 for father-child agreement and .73 for mother-child agreement.

Depression. We used the abbreviated 7-item version of *The Center for Epidemiologic Studies-Depression Scale, CESD-7* (Santor and Coyne, 1997) which measures the severity of symptoms of depression during the past week (e.g. "I felt that I could not shake off the blues even with the help from my family or friends") using a 4-point Likert-type scale ranging from 0 ("never") or rarely to 3 ("almost always"). Internal consistency was $\alpha = .87$.

Medical status: Doctors provided information about the children's diagnosis, severity (measured by a scale from 0 to 10), the stage of disease (i.e. active treatment/off treatment/relapse/palliative), and perceived probability of survival at 1 and 5 years.

Data analysis

Chi-square (with Fisher's exact test corrections when needed) and *t*-tests were used to confirm initial equivalence of groups in demographic variables. A series of repeated measures mixed between-within subject ANOVAs were conducted to compare scores on the measures of well-being between the wish group and the waiting-list control group across two time periods (T1 and T2). We used repeated-measures ANCOVAs in order to include potential control variables such as covariates in our analyses. We further examined the univariate *F* tests for each dependent variable (confidence intervals adjusted by the Bonferroni procedure). SPSS 20 was used for all analyses.

Results

The main characteristics of the sample (i.e. child's and parent's age, gender, diagnosis, time since diagnosis and severity) did not differ

between groups (all $p > 0.05$; Table 1). Only age and months since diagnosis showed significant correlations with some of the variables included in the study. Age was also related to satisfaction with life ($r = -.43, p < .001$) and vitality ($r = -.25, p = .03$). Time since diagnosis was related to satisfaction with life ($r = -.29, p = .02$) and vitality ($r = -.29, p = .03$).

With regard to psychological variables, there were no statistically significant differences between groups in T1, except for optimism ($t(64) = -2.39, p = .02$) and beliefs in the benevolence of the world ($t(73) = -2.74, p = .008$), the wish group showing higher values in both variables. Therefore, age, months since diagnosis, optimism, and beliefs in the benevolence of the world were included as covariates in all subsequent repeated-measures ANCOVAs analyses.

Positive intervention effects: children report

With regard to PE and NE, there was a significant interaction between group and time for PE, $F(1, 71) = 4.93, p = .03, partial \eta^2 = .07$ (Table 2). Post-hoc comparisons using Bonferroni tests indicated that, in T2, children in the wish group showed higher PE scores than the control group. More relevant for our study, in comparing PE scores between T1 and T2, the wish group showed a significant increase in that period whereas the control group did not change (Figure 2).

With regard to satisfaction with life, there was a significant interaction between group and time for multidimensional SLSS, $F(1, 71) = 6.05, p = .02, partial \eta^2 = .08$ (Table 2). Post-hoc Bonferroni tests indicated that, in comparing multidimensional SLSS scores between T1 and T2, the wish group showed a significant increment in that period whereas the control group did not change.

Regarding the personal strengths, there were significant interactions between group and time for gratitude ($F(1, 69) = 7.68, p = .008, partial \eta^2 = .13$) and love ($F(1, 69) = 4.33, p < .05, partial \eta^2 = .08$; Table 2). Post-hoc Bonferroni tests indicated that, in T2, children in the wish group showed higher gratitude and love

Table 1. Characteristics of Wish group (WG) versus Control group (CG).

	Children		Fathers		Mothers	
	WG	CG	WG	CG	WG	CG
N	41	37	20	18	43	43
Age, M (SD)	11.49 (3.25)	11.89 (3.56)	44.89 (6.65)	41.11 (7.02)	41.17 (7.24)	40.63 (6.71)
Gender						
Male	58.5%	56.7%				
Diagnosis						
Cancer	33%	32%	42%	39%	30%	34%
Transplants	6.4%	9%	5%	5%	3%	6%
Other diseases	12.8%	6.4%	5%	3%	10%	3%
Months since diagnosis, M (SD)	54.74 (61.16)	33.23 (52.84)	42.11 (61.10)	27.28 (47.36)	54.44 (63.30)	31.13 (51.97)
Severity from 0 to 10; M (SD)	6.35 (2.77)	6.13 (2.73)	7.88 (1.64)	7.13 (1.81)	6.70 (2.80)	6.68 (2.36)
Stage of the disease						
Active treatment	23.1%	27.1%	21.3%	26.0%	22.2%	26.0%
Off-treatment	18.6%	14.6%	15.8%	15.8%	18.8%	14.8%
Relapse	7.7%	7.7%	11.3%	9.8%	9.3%	9.8%
Prognosis						
Unfavorable	9.4%	9.4%	6.2%	18.7%	10.9%	10.9%
Favorable	9.4%	9.4%	18.7%	18.7%	6.5%	8.7%
Intermediate life risk	31.1%	31.1%	25%	12.5%	32.6%	30.4%
Mean probability of survival from 0 to 100, M (SD)						
1 year	79.75 (23.9)	83.41 (12.9)	73.75 (19.2)	78.13 (13.6)	74.13 (29.7)	79.57 (17.6)
5 years	70.20 (28.2)	68.24 (17.0)	63.13 (22.5)	58.75 (14.6)	64.96 (29.7)	64.35 (18.8)

scores than the control group. Specifically, in comparing scores between T1 and T2, the wish group showed significant increments in gratitude and love in that period whereas the control group did not change (Figure 2).

With regard to health-related quality of life, there was only a significant interaction between group and time for nausea ($F(1,73)=5.32$, $p=.02$, *partial eta squared*=.10; Table 2). Bonferroni tests confirmed that, in T2, children in the wish group showed less nausea than the control group. Specifically, in comparing scores in this domain between T1 and T2, the wish group showed less nausea in that period whereas the control group did not change (Figure 2).

Results reported by fathers³

The means and SDs for the fathers' reports are shown in Supplementary Table 1. There were

no significant interactions between group and time for fathers' perception of benefit finding ($F(1, 34)=2.67$, $p>.05$, *partial eta squared*=.07), general quality of life ($F(1, 34)=1.56$, $p>.05$, *partial eta squared*=.04), or health-related quality of life ($F(1, 34)=1.04$, $p>.05$, *partial eta squared*=.03).

Results reported by mothers

The means and SDs for the mothers' reports are shown in Supplementary Table 2. With regard to mothers' perception of benefit finding, there was a significant interaction between group and time, $F(1, 81)=11.30$, $p=.001$, *partial eta squared*=.12. Bonferroni tests confirmed that although both wish group and control group showed a significant increment in that period, mothers in the wish group perceived higher benefits in their children in T2 than mothers in the control group (Figure 2).

Table 2. Changes in subjective well-being, psychological resources, and clinical outcomes in children: Wish group (WG) versus Control group (CG).

Measures	Minimum–maximum	Time	Control group		Wish group		<i>F</i>	<i>Partial eta squared</i>
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Subjective well-being								
Positive emotions	0–4	T1	2.19	.76	2.53	.65	4.93*	.07
		T2	2.20	.71	2.90	.50		
Negative emotions	0–4	T1	.51	.74	.14	.24	.10	.02
		T2	.39	.74	.11	.17		
General satisfaction with life, SLSS	0–3	T1	1.93	.58	1.97	.53	3.11	.06
		T2	1.96	.53	2.24	.58		
Multidimensional satisfaction with life, MSLSS	0–10	T1	8.23	1.08	8.44	1.17	6.05*	.08
		T2	8.19	1.21	8.99	.94		
General quality of life, PedsQoL	0–4	T1	2.64	.69	2.77	.55	.26	.01
		T2	2.77	.55	2.98	.58		
Psychological resources								
Benefit finding, BFSC	1–5	T1	3.99	.83	4.10	.64	1.54	.03
		T2	4.37	.77	4.39	.74		
Perseverance, VIA-Y	1–5	T1	3.57	.73	3.65	.88	.71	.00
		T2	3.59	.65	3.70	.87		
Vitality, VIA-Y	1–5	T1	3.88	.82	3.99	.68	3.51	.07
		T2	3.83	.71	4.12	.59		
Gratitude, VIA-Y	1–5	T1	4.27	.47	4.46	.51	7.86**	.13
		T2	4.22	.50	4.65	.34		
Love, VIA-Y	1–5	T1	4.21	.53	4.43	.45	4.33*	.08
		T2	4.19	.45	4.52	.37		
Love of learning, VIA-Y	1–5	T1	3.92	.83	4.20	.68	.09	.00
		T2	3.89	.68	4.16	.66		
Clinical outcomes								
Pain, HPedsQoL	0–4	T1	2.75	1.08	2.85	1.17	2.74	.04
		T2	2.81	.99	3.27	.74		
Nausea, HPedsQoL	0–4	T1	2.61	1.06	2.74	.93	5.32*	.10
		T2	2.57	1.13	3.06	.82		
Depression, CESD-7	0–3	T1	.51	.61	.47	.62	.34	.01
		T2	.43	.52	.26	.44		

SLSS: *The Student Life Satisfaction Scale*; BMSLSS: *The Brief Multidimensional Student Life Satisfaction Scale*; BFSC: *Benefit Finding Scale for Children*; VIA-Y: *Values in Action for Youth*; PedsQoL: *Pediatric Quality of Life Scale*; CESD-7: *Center for Epidemiologic Studies-Depression Scale*; T1 (Time 1): 2–3 days before fulfilling the wish; T2 (Time 2): 3 weeks after fulfilling the wish. * $p < .05$.

With regard to general quality of life, there was a significant interaction between group and time, $F(1, 81) = 7.85$, $p = .006$, *partial eta squared* = .09. Bonferroni tests indicated that, in T2, mothers in the wish group perceived better functioning in their children than mothers in the

control group. More relevant for our study, in comparing general quality of life scores between T1 and T2, mothers in the wish group showed a significant increment in that period whereas the control group did not change. Specifically, there were significant interactions between group and

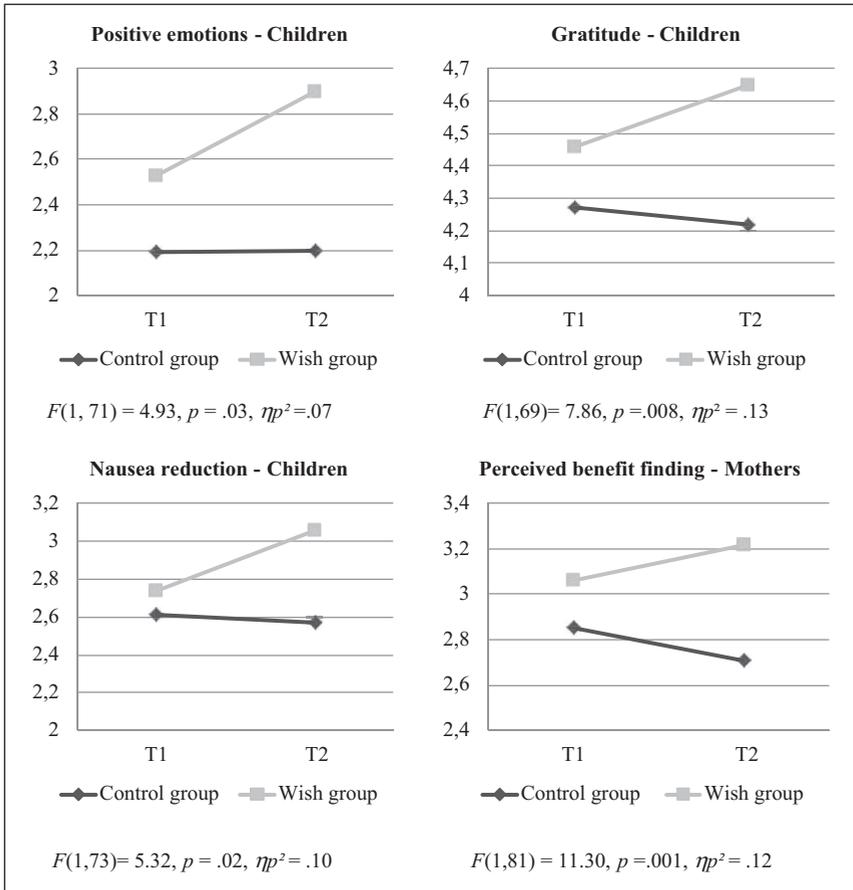


Figure 2. Main outcome effects on well-being dimensions. (See score ranges in Table 2 and Supplementary Table 2).

time for the physical domain, $F(1, 81)=6.27, p=.01, partial\ eta\ squared=.07$, the school domain, $F(1, 81)=5.05, p=.03, partial\ eta\ squared=.06$, and the emotional domain, $F(1, 81)=4.32, p=.04, partial\ eta\ squared=.05$.

With regard to health-related quality of life, there was no significant interaction between group and time, $F(1, 81)=3.02, p=.09, partial\ eta\ squared=.04$. With regard to specific scales of health-related quality of life, there was only a significant interaction between group and time for concerns about disease, $F(1, 81)=5.56, p=.02, partial\ eta\ squared=.06$. Post-hoc comparisons using Bonferroni tests indicated that mothers' perception of their children's quality

of life in this domain was significantly higher in T1 than in T2 whereas there was no time change in mothers of the control group.

Discussion

This study analyzed the effects of a positive intervention on children's well-being and several domains of positive functioning as assessed by themselves and their parents. According to our first hypothesis, we expected that granting a wish would reduce NE and increase PE, life satisfaction, and general quality of life. Although our results did not confirm our predictions for NE, we found that wish-granting promotes PE

and that its resultant effects last for at least several weeks. According to the *broaden-and-build theory of PE* (Fredrickson, 1998, 2001), PE work by helping to build durable physical, intellectual, and social resources that are essential to promoting adaptive coping responses following traumatic circumstances (Cohn et al., 2009; Tugade and Fredrickson, 2002).

Furthermore, with regard to life satisfaction and general quality of life, our results showed that this intervention improves a multidimensional composite score of life satisfaction. This finding has relevant implications given the previous evidences that link satisfaction with life to more positive functioning (Gilman and Huebner, 2006).

These results partially confirm our hypothesis. The wish did not cause significant decreases in NE or depression, perhaps due to a floor-effect (i.e. very low scores on these negative dimensions found in both groups). Research has consistently shown that although a significant minority has some difficulties with adjustment and/or symptoms of psychological distress, the majority of children with a chronic illness show good levels of adjustment (Zebrack and Chesler, 2002). Thus, well-being based interventions probably have a limited effect in decreasing distress (Pai et al., 2006).

As for our second hypothesis, we expected that granting a wish would promote positive functioning and other psychological resources (i.e. benefit finding, personal strengths, beliefs in the benevolence of the world, and optimism). Results revealed that the children in the wish group reported significantly higher gratitude and love after the granting of the wish than those in the comparison group. Children in the wish group became more aware of the support provided by others and this awareness could have lead to a sense of thankfulness and love in response to fulfilling a wish. Gratitude and love are two of the strengths most robustly associated with life satisfaction (Park et al., 2004). Gratitude appears to be a powerful resilience factor that may help people to cope with traumatic experiences (Fredrickson et al., 2003). Several studies have shown that interventions

promoting gratitude reduce negative affect and increase levels of positive affect, life satisfaction, and optimism about the future (Bono and McCullough, 2006; Emmons and McCullough, 2003). Thus, a grateful attitude may be beneficial to improve physical health status and may also help the individual find positive meaning in negative circumstances (Emmons and McCullough, 2003). In a study with healthy children and adolescents, Froh et al. (2009) found a positive association between gratitude and positive affect, satisfaction with life, optimism, social support, prosocial behavior, and physical health.

On the other hand, loving and feeling loved provides emotional security and confidence that allow children to more effectively cope with daily stress (Hazan, 2004). Caring ties can buffer people from adversity and pathology as well as enhance their health and well-being (Fredrickson, 2013). A recent study showed that perceived positive social connections account for the upward spiral between PE and health benefits, such as increases in vagal tone (Kok et al., 2013).

As for our third hypothesis, we expected that our intervention would have some impact on children's physical symptoms. Our results showed that the children in the wish group reported significantly lower levels of nausea after wish than those in the comparison group. This result is consistent with research showing that music therapy or visual imagery has positive effects on reducing nausea and other side effects in adult patients with chronic illnesses (Karagozoglu et al., 2013).

As for our fourth hypothesis, we expected that parents in the wish group would perceive positive changes in their children's well-being. Specifically, mothers in the wish group reported positive changes in benefit finding and general quality of life in children, especially in physical, school, and emotional domains. Mothers in the wish group also reported a perceived decrease in their child's concerns about the disease. This result supports previous research on clown interventions that showed a significant decrease in children's concerns about the hospitalization,

the medical procedures, and the illness and its negative consequences (Costa and Arriaga, 2010). Those dimensions are particularly relevant in children with life-threatening illnesses, given the different pathways in which BF and quality of life may improve physical and psychological health (Bower et al., 2009; Hedström et al., 2004). These findings are also relevant because although the PE promoted by granted wishes can be considered as transient and ephemeral, it may have an effect on increasing or maintaining people's subsequent psychological well-being by channeling more effective coping resources (Tugade and Fredrickson, 2002). Furthermore, perception of the child's distress is one of the most common explanations for parental anxiety (Lamontagne et al., 2003). Thus, parents' perception of positive changes may be an indicator of actual changes in the children but may also serve to promote well-being of the parents themselves. This in turn may contribute to creating or maintaining upward spirals of PE within the turmoil of adverse experiences (Tugade and Fredrickson, 2002).

Our study has some limitations. First, our sample includes some very young children. Protocol was carefully designed to facilitate the understanding by children of all ages (i.e. providing visual aids such as faces or thermometers, reading each item to the child when needed, or pre-testing cognitive competence). However, we cannot be completely sure that all the children understood what they were being asked. Second, extremely-ill children or those who lacked the necessary language skills, attention span, or cognitive abilities to complete a questionnaire were excluded to ensure the quality of the study, but this may limit generalization of results. Third, it is noticeable that effect sizes of the intervention on the measures were relatively small. Yet, it is still remarkable that a rather small-scale and limited intervention may have a significant effect on children's well-being.

Despite these limitations, we believe that our study has some important contributions to the current literature in the field. This is, to our knowledge, the first controlled study of this kind

of intervention for ill children. In contrast to other studies that have assessed similar naturalistic interventions (e.g. clown interventions), we used a pre-post test comparison-group design. This procedure allowed us to evaluate changes in outcomes while controlling for potential baseline differences between groups. Second, positive interventions, like the one analyzed in this research, are increasingly being integrated into pediatric oncology care and this study supports its efficacy in several parameters related to positive functioning. Since healthcare policy should rest on empirically supported interventions, our results can foster a renewed interest in funding research on positive interventions.

Third, most of the studies on psychological interventions in these clinical contexts are usually focused on the psychological distress associated with childhood chronic illness. Yet, an exclusive focus on the detrimental effects of the illness may bias the psychological assessment process and may impede the observation of changes in other relevant areas of psychological functioning. Multidimensional assessment including a wide array of well-being measures provides a more accurate picture of children's responses to potentially stressful events.

In conclusion, our results suggest that although it is necessary to provide effective treatments for emotional and behavioral difficulties when they do arise, a further aim should be taken into consideration to promote resilience and positive adjustment. Children who are cared for in terms of both their medical and psychological needs are more likely to adjust positively to any challenges arising from their condition, enabling them to participate more fully in ordinary childhood activities and lead as normal a life as possible. Thus, we encourage the use of this type of positive intervention for children with serious illnesses and we expect a growing presence of studies focusing on positive interventions in children with serious illnesses.

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Notes

1. This program is run by Fundacion Pequeño Deseo (FPD) which operates in four different hospitals. Children who undergo a life-threatening illness and have not received a wish before may be eligible for a wish. After parental consent, all children are subjected to a masked interview by members of the FPD staff (i.e. interview for writing a book about children in hospitals) through which a valued wish is identified for each participating child (e.g. a visit to Disneyland or meet with his/her favorite soccer player). Parents and doctors become accomplices to make the wish surprise comes true.
2. Children's benefit finding and quality of life was directly assessed by children. Parents also reported children's benefit finding and quality of life through the completion of parents report versions.
3. We present data from all parents of the children who fulfilled a wish, regardless of whether their children participated or not in our study on impact on well-being. The same results were found when parents whose children did not participate in our study were excluded from analyses.

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