

Sensory Processing Sensitivity, Caregiving Strategies, and Well-Being of Medical Clowns

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Abstract

There has been increasing interest in the relatively new profession of medical clowning. However, studies to date have mainly focused on evaluating the effectiveness of clown interventions, and, to the best of our knowledge, only a few research studies have explored the psychological characteristics of medical clowns. Broadening this knowledge may facilitate the development of better psychological and professional support for medical clowns, better assessment of clown–patient relationships, and better assessment of clowns’ intervention outcomes. The main aim of this study was to assess specific traits of medical clowns, namely whether medical clowns are characterized by higher sensory processing sensitivity (SPS) and whether the SPS of medical clowns is associated with their caregiving strategies and their own well-being. A sample of 62 Israeli medical clowns completed a demographic questionnaire, the self-reported Highly Sensitive Person Scale (HSPS), the Caregiving System Scale (CSS), and the WHO-5 Index. Of the participants, 43.5% were classified as being high in SPS, and higher SPS was related to higher hyperactivation strategies and to lower well-being. Yet, higher levels of deactivation strategies were related to better well-being within clowns with high SPS. The study concluded that targeting highly sensitive medical clowns before their training, during their training, and throughout their ongoing work could help provide them appropriate support to establish better emotion-regulating strategies and eventually improve their well-being.

Keywords: medical clowns, sensory processing sensitivity, caregiving strategies, well-being

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informed consent forms to confirm their participation, and the privacy rights of human subjects were always observed.

Introduction

Medical clowning is an interdisciplinary care profession that involves a large variety of skills, such as humor, drama, music, and dance, to improve the mood of hospitalized patients, relatives of patients, and healthcare staff (Dionigi, 2017). The main purposes of medical clowning are decreasing the negative emotions (e.g., anxiety, stress, and pain) experienced by patients and relatives and providing ill patients a different avenue for emotional expression during hospitalization (Ford et al., 2014), as well as increasing patients' sense of control over their condition (Meiri et al., 2016). Although medical clowning was initially limited to pediatric wards, several programs have been established over recent years to include services for adults in general and for the elderly in particular (Koller & Grisky, 2008).

Medical clowning has been found to improve the psychological and physical health of a large variety of recipients. Children who had clown intervention during their hospitalization were found to have more positive and less negative emotions compared to those who did not have clown intervention (Ben-Pazi et al., 2017; Meiri et al., 2016; Tener et al., 2012; Zhang et al., 2017). Clown intervention was also found to be effective in reducing negative affectivity in adults and the elderly. It has shown positive effects in a large variety of settings, such as oncology and dialysis units (Nuttman-Shwartz et al., 2010; Raviv, 2015), geriatric and mental health centers (Dunn et al., 2019; Rämngård et al., 2016), centers for sexually abused children (Tener et al., 2010), and natural disaster settings (Raviv, 2014).

There has been increasing interest in this field, but studies to date have mainly focused on evaluating the effectiveness of clown interventions, and, to the best of our knowledge, only a few research studies have been conducted to evaluate clowns' personalities. It can be assumed that the lack of empirical studies is probably due to the absence of an accreditation or certification program for these interdisciplinary practitioners, which results in varying levels of professionalism and accountability among them (Dionigi, 2017; Raviv, 2018). However, medical clowning is a relatively new profession and understanding their personality characteristics is essential. Broadening this knowledge may facilitate the development of better psychological and professional support for medical clowns, better assessment of clown–patient relationships, and better assessment of clowns' interventions outcomes.

Medical clowns are different from circus clowns in that medical clowns must possess specific psychological competences that help them to better understand patients' feelings in

order to adapt their performance and modify the atmosphere within the care setting into a positive mode (Warren & Spitzer, 2013). To accomplish their work, medical clowns should possess a balanced personality, be able to manage the different situations they must face, possess excellent listening and interpersonal skills to adapt to recipients' moods and act accordingly, and have a good sense of humor to amuse patients (Barkmann et al., 2013). Research has shown that medical clowns scored higher in extraversion, conscientiousness, agreeableness, and openness to experience and scored lower in neuroticism compared to the general population (Dionigi, 2016). Specifically, neuroticism was found to be a detrimental personality trait for their activity, while conscientiousness was found to be a positive one (Dionigi et al., 2014; Dionigi, 2020). Research also has confirmed that humor is an important aspect required for clowns (Nuttman-Shwartz et al., 2010).

To address the paucity of studies investigating the personality traits of medical clowns and how these traits may affect both their performance and their own well-being, we were interested in investigating specific personality traits of medical clowns related to fundamental aspects of their practice—sensory processing sensitivity (SPS; or highly sensitive personality [HSP]) and caregiving strategies—and their relationship with their well-being.

Sensory Processing Sensitivity

Individuals perceive and respond to their environment through the processing of sensory information, which is related to the tendency to deeply process a variety of information, including the arts, other peoples' moods, hunger, and pain (Aron & Aron, 1997; Aron et al., 2012). Individuals high in SPS tend to process and respond to lower thresholds of information and to better detect subtle differences in their environment, being more in tune with their own thoughts and emotions, more aware of the emotions of others, and more responsive to and aware of environmental changes (Nocentini et al., 2018; Slagt et al., 2018). Individuals high in SPS are also characterized by a heightened aesthetic sense, a subtle sense of humor, and creativity; and although most are introverted, they may enjoy interacting with others and are motivated by novelty, the seeking of new experiences, and a susceptibility to boredom (Aron, 2013; Cooper, 2016). Further, there is some evidence that people high in SPS have high activation of brain regions involved in awareness, empathy, and self–other processing (Acevedo et al., 2014). Thus, individuals high in SPS are more likely to engage in helping professions (e.g., teaching, counseling, healthcare) (Cooper, 2015).

Conversely, there is also evidence that individuals high in SPS are more prone to experience anxiety disorders (Liss et al., 2008), avoidant personality (Meyer & Carver, 2000),

and depression (Johnson et al., 2003). Individuals high in SPS are *not* necessarily prone to more negative emotional states. However, under negative conditions (e.g., stressful settings), high levels of SPS may lead to especially poor outcomes, stress, and symptoms of illness (Benham, 2006), as high-SPS individuals experience sensory bombardment that leaves them more vulnerable than others to negative and stressful experiences (Aron & Aron, 1997; Hartman & Belsky, 2015) and to experiencing higher levels of stress (Aron et al., 2005). With reference to personality traits, high SPS was found to be moderately related to neuroticism, emotionality, and high agreeableness (Aron & Aron, 1997).

Medical clowning represents a challenging practice because of the psychological conditions the clowns face during their activity (Raviv, 2018). Clowns working in healthcare settings were found to be higher in agreeableness, sensitivity to and understanding of others' needs, and compassion (Dionigi, 2016; Raviv, 2018; Warren & Spitzer, 2013). They also were found to possess high creativity, improvisation, and spontaneity; to adapt to each patient's situation and mood; and to develop a safe and supportive, empowering relationship with children, where there is play, laughter, and imagination (Leef & Hallas, 2013; Finlay et al., 2017). Similarly, highly sensitive individuals are characterized by emotional responsiveness, a rich inner world, creativity, awareness, and empathy (Acevedo et al., 2014; Aron & Aron, 1997), and they tend to practice in the helping professions (Cooper, 2016). Based on their need to be able to pay attention to the emotional impact and consequences of their actions, we assumed that medical clowns would possess high SPS.

Research Hypothesis 1. High sensory processing sensitivity will be more frequent among medical clowns than among the general population.

Caregiving Strategies

Attachment theory (Bowlby, 1982) suggests that an individual's caregiving behaviors or reactions to others' distress are organized by an innate behavioral system known as the caregiving behavioral system. The caregiving behavioral system is aimed at concern for others, responding to their needs, and finally relieving their distress and reducing their suffering (Mikulincer & Shaver, 2016; Shaver et al., 2010). Caregiving behaviors are activated by another's signal of distress (e.g., a person in pain), which guides the caregiver to show interest in the person's needs and/or provide support; these behaviors are deactivated when the stimuli end or change and the system's goals are achieved (i.e., relief of another's pain) (Mikulincer & Shaver, 2016). This process is regulated by cognitive mental representations of caregiving:

representations of the self as a caregiver and of others as worthy of care, which are shaped by the individual's temperament and early experiences (Bowlby, 1982). Hence, some characteristics may lead individuals to develop negative mental representations of caregiving and to replace them with alternative caregiving strategies, such as hyperactivation or deactivation (Shaver et al., 2010).

Hyperactivation strategies keep caregiving chronically activated until the goal is achieved (Shaver et al., 2010). Thus, care strategies associated with hypervigilance and an exaggerated appraisal of others' needs might be expressed as an inconsistent and intrusive behavior that is often asynchronous with the other's needs (Mikulincer & Shaver, 2016). In the end, these strategies may nourish negative representations of the self and the other and may further intensify any emotional difficulties (Shaver et al., 2010). In contrast, deactivation strategies limit involvement to avoid the distress caused by failed efforts to cope (Mikulincer & Shaver, 2012). Therefore, misinterpreting information that signals others' needs (Mikulincer & Shaver, 2016) might lead to detached, cold, or even harsh care (Jones et al., 2014).

Medical clowns regularly witness the suffering of others, while working under demanding conditions in stressful environments (Warren & Spitzer, 2013), and thus require particular psychological competences (Dionigi, 2020). Specifically, medical clowns should react properly under those demanding conditions and use effective caregiving strategies (i.e., low hyperactivation and low deactivation). However, medical clowns higher in SPS, in their efforts to manage their own stress and worries while easing a patient's distress, may have more difficulty staying in character and experience more stress during their work (Dionigi, 2020; Dionigi et al., 2014) and activate less effective caregiving strategies.

Research Hypothesis 2. High SPS will be positively associated with ineffective caregiving strategies (i.e., hyperactivation and/or deactivation) of medical clowns.

Sensory Processing Sensitivity, Caregiving Strategies, and Well-Being

Previous studies have found that medical clowns scored higher in openness to experience, conscientiousness, extraversion, and agreeableness and lower in neuroticism compared to the general populace (Dionigi, 2016). Neuroticism is made up of traits like anxiety, depression, and low self-esteem and leads to negative coping strategies with a negative impact on efficiency (Eysenck & Calvo, 1992). Clowns higher in neuroticism have been found to be more likely to develop burnout (Dionigi, 2020). Because medical clowns are required to understand patients' feelings and manage their and others' emotions in order to perform well and

accomplish their task, they have been predicted to score low on neuroticism (Dionigi, 2020; Dionigi et al., 2016). Furthermore, several studies have shown that neuroticism and well-being are negatively related (Arshad & Rafique, 2016; Iani et al., 2017).

Medical clowns who are high in SPS, which is associated with neuroticism (Aron & Aron, 1997), would have difficulty managing their own stress and worries, and easing a patient's distress may decrease their ability to respond in a consistent manner that is suited to the patient's needs. Furthermore, they would experience difficulty staying in character and more stress during their work (Dionigi et al., 2014). Therefore, the current study suggests that clowns high in SPS will activate less effective caregiving strategies and will experience lower emotional well-being (i.e., higher levels of depression).

Research Hypothesis 3. High SPS will be negatively associated with the well-being of medical clowns.

Method

Participants

Participants were 62 Israeli professional medical clowns, 32 males (51.6%) and 30 females (48.4%). They were 29 to 65 years old, with an average age of 42.10 years ($SD = 8.21$). They had been working as medical clowns for as many as 23 years, with an average of 7.98 years ($SD = 4.60$).

Procedure

Data were collected in a manner consistent with ethical standards for the treatment of human subjects. Informed consent was obtained, and privacy rights were always observed. Medical clowns were invited to participate in the study through the Israeli nonprofit Dream Doctors Project. After signing informed consent forms, participants were asked to complete digital questionnaires. Participants completed a demographic questionnaire, the self-reported Highly Sensitive Person Scale (HSPS), the Caregiving System Scale (CSS), and the WHO-5 Index.

Instruments

Demographic Questionnaire. We collected information about participants' gender, age, and medical clowning seniority.

HSPS. The HSPS (Aron & Aron, 1997) Hebrew translation has been validated (e.g., Goldberg et al., 2018; Goldberg & Scharf, 2020). Participants were asked to respond to items using a Likert scale ranging from 1 (*not at all*) to 7 (*extremely*; e.g., “Do other people’s moods affect you?”). The total score was composed of the items’ mean, with higher scores representing greater sensitivity levels. Mean SPS ($M = 5.21$) was used as a cutoff point to detect participants with higher levels of sensitivity. Internal consistency was .86.

CSS. The CSS is a 20-item self-report scale (Shaver et al., 2010) that rates, on a 7-point Likert scale, the extent to which respondents agree with each item for how they feel, think, and behave when caring for others, ranging from 1 (*not at all*) to 7 (*very much*). The CSS has two subscales of 10 items each that assess caregiving strategies: hyperactivating (e.g., “I sometimes feel that I intrude too much while trying to help others”) and deactivating (e.g., “When I notice or realize that someone seems to need help, I often prefer not to get involved”). For each subscale, higher scores represent greater levels of hyperactivating or deactivating strategies. The Hebrew version of the CSS has shown solid reliability (e.g., Reizer et al., 2014). Internal consistency in the present research for hyperactivation was .80 and for deactivation was .81.

WHO (Five) Well-Being Index. The WHO-5 is a self-report questionnaire (based on the WHO-10 Well-Being Index) (Bech et al., 1996, 2003), covering five items related to positive mood (good spirits, relaxation), vitality (being active and waking up fresh and rested), and general interests (being interested in things). Each item is rated on a 6-point Likert scale from 0 (*not present*) to 5 (*constantly present*). Scores are summed, and raw scores range from 0 to 25. Then the scores are transformed to a 0–100 scale by multiplying by 4, with higher scores meaning better well-being. A score of 50 or below indicates low mood, although not necessarily depression. A score of 28 or below indicates likely depression and warrants further assessment to confirm depression. The Hebrew version of the WHO-5 has shown solid reliability (e.g., Singer et al., 2018). Internal consistency in the current research was .83.

Data Analysis

Means, standard deviations, and intercorrelations between the study variables were first calculated. Gender differences were assessed with *t* tests, and correlations with age and seniority in medical clowning were calculated. Multiple hierarchical regressions were used to predict hyperactivation and deactivation with SPS, and well-being with SPS, hyperactivation, and deactivation. Gender and age were entered in Step 1 as control variables. Because

hyperactivation and deactivation were not found to mediate the relationship between SPS and well-being, the moderating role of SPS was examined. The interactions of SPS with both hyperactivation and deactivation approached significance; thus, in an exploratory manner, two regression models were examined to predict well-being in the low- and high-SPS groups separately.

Results

Results regarding the distribution of the study variables and their intercorrelations are presented in Table 1. First, the relationships between the study variables and demographic characteristics were examined, in order to assess which variables needed to be controlled for when evaluating the study hypotheses. This examination revealed that SPS was higher for females ($M = 5.34$, $SD = 0.82$) than for males ($M = 5.11$, $SD = 0.70$) [$t(60) = 2.53$, $p = .014$], and well-being was lower for females ($M = 52.93$, $SD = 16.02$) than for males ($M = 65.86$, $SD = 14.45$) [$t(60) = -3.34$, $p = .001$]. Age was positively related to well-being ($r = .32$, $p = .011$). Other correlations with age, and all correlations with seniority in medical clowning, were nonsignificant ($p > 0.05$).

Then, frequency of the variables was evaluated. Mean SPS was above the scale midpoint, mean hyperactivation was somewhat below the scale midpoint, and mean deactivation was significantly lower than mean hyperactivation ($t(61) = 5.49$, $p < .001$). Mean well-being was above the scale midpoint, with 21 participants (33.9%) scoring below 50 points, and none scoring below 30 points. Correlations revealed that SPS was positively related to hyperactivation and that both were negatively related to well-being. SPS was unrelated to deactivation, and deactivation was unrelated to well-being. Hyperactivation and deactivation were unrelated as well.

Table 1 Means, Standard Deviations, and Correlations for the Study Variables (N = 62)

	M (SD)	2.	3.	4.	5.	6.
1. Gender	- -	.39**	-.31*	-.17	-.03	.40**
2. Age	42.10 (8.21)		-.17	-.16	-.13	.32*
3. SPS	5.21 (0.80)			.38**	.09	-.37**
4. Hyperactivation	3.79 (1.00)				.23	-.34**
5. Deactivation	2.96 (0.89)					-.03
6. Well-Being	59.60 (16.45)					

Note. N = 62. SPS = Sensory Processing Sensitivity. * $p < .05$, ** $p < .01$

The first hypothesis was that high sensory processing sensitivity would be more frequent among medical clowns than among the general population [20%-30% (Aron & Aron, 1997; Lionetti et al., 2018)]. The results revealed that 27 medical clown participants (43.5%) were classified as being highly sensitive. Ten males (31.3%) were classified as being highly sensitive, whereas 17 females (56.7%) were so classified, with a significant difference ($Z = 2.02, p = .044$).

The next two hypotheses were examined with multiple hierarchical regressions, predicting hyperactivation and deactivation with SPS, and well-being with SPS, hyperactivation, and deactivation (Table 2). All predictors were centered.

Table 2 Multiple Hierarchical Regressions Predicting Hyperactivation, Deactivation, and Well-Being

	Hyperactivation			Deactivation			Well-Being		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Step 1									
Gender	-0.25	0.27	-.13	0.05	0.25	.02	10.96	4.03	.34**
Age	-0.01	0.02	-.11	-0.01	0.01	-.14	0.48	0.25	.24
Adj. <i>R</i> ²	.01			-.01			.20***		
Step 2									
Gender	-0.05	0.27	-.02	0.08	0.26	.05	8.33	4.01	.26*
Age	-0.01	0.02	-.09	-0.01	0.01	-.14	0.46	0.24	.23
SPS	0.45	0.16	.36**	0.09	0.15	.08	-5.86	2.38	-.29*
Adj. <i>R</i> ²							.27***		
Step 3									
Gender							8.69	4.00	.27*
Age							0.43	0.24	.21
SPS							-5.19	2.51	-.25*
Hyperactivation							-1.30	1.98	-.08
Deactivation							-3.32	2.49	-.15
Adj. <i>R</i> ²	.11*			-.03			.28***		
<i>F</i>	<i>F</i> (3, 58) = 3.52*			<i>F</i> (3, 58) = 0.46			<i>F</i> (5, 56) = 5.57***		

Note. *N* = 62. SPS = Sensory Processing Sensitivity. **p* < .05, ***p* < .01, ****p* < .001

Gender (1 = male, 0 = female) and age were entered in Step 1 as control variables. Results revealed that high SPS positively predicts hyperactivation, but no relationship emerged between high SPS and deactivation. High SPS was found to negatively predict well-being, yet hyperactivation and deactivation were unrelated to well-being, beyond the effect of SPS. That is, higher SPS was related to higher hyperactivation and to lower well-being. Note that using the dichotomous variable of SPS (high/low) did not change the results.

An attempt was made to assess whether hyperactivation or deactivation mediates or moderates the relationships between SPS and well-being. For that purpose, SPS, hyperactivation, and deactivation were standardized. First, mediation was examined with the Process procedure (Hayes, 2018), using model 4 with two mediators, and bootstrapping of 5000 samples. The total indirect effect was not significant: effect = -0.38, *SE* = 0.88, 95% *CI* = -1.94,

1.58 (and neither were the two specific indirect effects: hyperactivation- effect = -0.43, $SE = 0.80$, 95% $CI = -1.97, 1.30$; deactivation- effect = 0.05, $SE = 0.44$, 95% $CI = -0.71, 1.18$). That is, as hyperactivation and deactivation were unrelated with well-being, beyond the effect of SPS on well-being, hyperactivation and deactivation did not serve as mediators in the relationship between SPS and well-being.

In Step 2, moderation was examined. Both interactions—between SPS and hyperactivation and between SPS and deactivation—approached significance. For SPS by hyperactivation $B = 3.76$, $SE = 2.31$, $\beta = .20$, $p = .110$, and for SPS by deactivation $B = 4.23$, $SE = 2.50$, $\beta = .22$, $p = .097$. Thus, interpretation of these interactions with a simple slopes analysis would have yielded nonsignificant results. However, in order to explore this trend, an attempt was made to cautiously assess the contribution of hyperactivation and deactivation to well-being, in the high-SPS and low-SPS groups separately. That is, SPS was divided into high and low subgroups, and two regression models were calculated, with well-being as the dependent variable, and hyperactivation and deactivation as the independent ones (Table 3).

Table 3 Multiple Hierarchical Regressions Predicting Well-Being by Group of SPS

	Well-being—low SPS (<i>n</i> = 35)			Well-being—high SPS (<i>n</i> = 27)		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Step 1						
Gender	10.46	5.84	.32	5.14	6.26	.16
Age	-0.04	0.36	-.02	0.75	0.36	.41*
Adj. <i>R</i> ²	.04			.17*		
Step 2						
Gender	8.22	5.37	.25	1.10	6.00	.03
Age	-0.26	0.34	-.13	0.95	0.34	.52*
Hyperactivation	-7.25	2.82	-.42*	-5.84	3.33	-.33
Deactivation	-4.05	2.85	-.22	8.17	3.22	.52*
Adj. <i>R</i> ²	.21*			.30*		
<i>F</i>	<i>F</i> (4, 30) = 3.21*			<i>F</i> (4, 22) = 3.75*		

Note. *N* = 62. SPS = Sensory Processing Sensitivity. **p* < .05

The results reveal interesting and unique findings for the role of hyperactivation and deactivation in the two groups of low- and high-SPS. Hyperactivation was negatively related to well-being in the low-SPS group, such that lower levels of hyperactivation were related to better well-being, beyond gender and age. Deactivation was positively related to well-being in the high-SPS group, such that higher levels of deactivation were related to better well-being, beyond gender and age. These results should be interpreted cautiously, as the initial interactions only approached significance.

Discussion

The main aim of this study was to assess specific traits of medical clowns, namely SPS and caregiving strategies, and to evaluate their relationship with well-being in a sample of Israeli clowns. We examined whether medical clowns possess higher sensitivity compared to the general population (i.e., high in SPS). We found that 43.5% of the sample was highly sensitive, whereas within the general population, 20% to 30% are hypothesized to be highly sensitive (Aron & Aron, 1997; Lionetti et al., 2018). This result corresponds to the findings of an Italian study that showed medical clowns scoring higher on the agreeableness personality dimension compared to the general population (Dionigi, 2016) and to the nonscientific literature

suggesting that medical clowns can understand patients' needs and act accordingly (Warren & Spitzer, 2013).

Sensory processing is related to how a person detects, regulates, interprets, and responds to sensory stimuli (Aron & Aron, 1997; Dunn, 2001). Individuals high in SPS are capable of deeply processing a variety of information, including other peoples' emotions, possess high empathy, and are more aware of and better able to detect subtle differences in the environment (Acevedo et al., 2014; Aron et al., 2010, 2012; Lionetti et al., 2018), which may move them to care for others and engage in helping professions (Aron, 2013; Cooper, 2015) such as medical clowning. Alternatively, practicing a challenging and intense helping profession such as medical clowning might affect the sensitivity genotype by increasing its phenotype expression (Pluess, 2015) and reported SPS levels.

Further examination showed that high SPS was positively associated with hyperactivation of caregiving and negatively associated with well-being. This result is not surprising as individuals high in SPS are more prone to experiencing higher levels of stress (Aron et al., 2005; Hartman & Belsky, 2015). Challenging and stressful environments, such as the medical setting, may lead clowns to experience higher stress and symptoms of illness (Benham, 2006) and may activate their sympathetic nervous system (Shoenfeld et al., 2008), which in turn increases the SPS phenotype expression (Pluess, 2015). In addition, medical clowns are practitioners required to be in tune with their own and others' thoughts and emotions (Aron et al., 2012), which may lead to intensification of their emotional responsiveness (Aron & Aron, 1997). Therefore, medical clowns who are high in SPS might experience more difficulty in regulating their needs while trying to relieve patients' distress. Thus, they might use hyperactivation caregiving strategies that keep their caregiving chronically activated (Shaver et al., 2010). Moreover, hyperactivation caregiving strategies are associated with hypervigilance and an exaggerated appraisal of their patients' needs, which are often asynchronous with the patient's actual needs (Mikulincer & Shaver, 2016), which may lead to frustration and emotional distress when caregiving goals are not attained (Mikulincer & Shaver, 2016; Shaver et al., 2010). Interestingly, caregiving strategies did not mediate the association between SPS and well-being, revealing a direct association between SPS and well-being. This result confirms earlier studies finding that high-SPS individuals are more prone to experiencing higher emotional distress (Johnson et al., 2003; Liss et al., 2008).

Finally, although the number of clowns high in SPS in the study was relatively small ($n = 27$), we explored the contribution of caregiving strategies to well-being within the high-SPS medical clown group. We found that deactivation strategies were positively associated with

well-being. Although previous studies showed that inefficient caregiving strategies may intensify emotional difficulties (Shaver et al., 2010), a more detached and limited involvement (i.e., deactivation strategies) may enhance the well-being of medical clowns high in SPS, who are characterized as feeling emotionally and physically overwhelmed by others' needs and emotions (Aron & Aron, 1997).

Limitations and Future Studies

Some limitations must be acknowledged. First, the current study employed a cross-sectional design; hence, there are limitations to any conclusions regarding causality. The stress that medical clowns experience as a major aspect of their work, especially for high-SPS medical clowns, was not evaluated and should be addressed in any future research. The relatively small sample of medical clowns further limits the findings, and replications with larger samples are required. Future research should also address other aspects of medical clowning (e.g., "clown shift" and humor strategies), as well as patient health and well-being. Finally, future research should use several sources and methods of reports (e.g., interviews, observations).

Conclusions

In the present study we found that the percentage of medical clowns scoring high in sensitivity was higher than that in the general population. This may be due to the tendency of high-SPS individuals to engage in helping professions (Cooper, 2015) and be a result of continued exposure to challenging experiences that may increase sensitivity, further activating the sympathetic nervous system (Pluess, 2015; Shoenfeld et al., 2008). Moreover, working in challenging settings such as hospitals may result in engaging in hyperactivation strategies and reporting lower well-being.

Therefore, targeting highly sensitive medical clowns both before their initial training and during their ongoing activity can help them during this challenging practice, improving clown-patient and work-colleague interactions, and eventually producing better outcomes for their patients. It might be that emotional and professional support focused on regulating stress and the separation of their own and their patients' emotions could facilitate their use of more effective caregiving strategies and alleviate their own stress, thereby improving their well-being.

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