

The State of Empirical Research on Logotherapy and Existential Analysis

Michael Thir and Alexander Batthyány

Introduction: Psychotherapy and Efficiency Research

Since the formation of psychotherapy as a clinical profession, its development has been accompanied by efforts to provide empirical evidence for its theoretical assumptions and its efficiency. Beginning with Freud's ideas on the use of statistics to document the positive effects of his newly founded psychoanalytic therapy, the paradigms of research on psychotherapy roughly represent two poles until this day: an empirical efficiency-orientated branch and a branch trying to give consideration to the complex processes occurring within psychotherapeutic treatment (Muran et al. 2010). The differentiation and enhancement of research questions and goals of psychotherapeutic research (cf. the summary of national research focuses by Strauss et al. 2015a, b) led to advances in various directions. On the one hand, "empirically supported treatment" (EST; Castelnovo 2010) aimed at providing empirical findings supporting the respective positions in the form of outcome studies with standardized design (Emmelkamp et al. 2014). On the other hand, a "critical intellectual turn" led to a research approach with a more patient-oriented focus and a supplementation of the research methodology by qualitative and explorative angles (Muran et al. 2010), e.g., systematic case study research (McLeod and Elliott 2011) and

M. Thir (✉)

Viktor Frankl Institute Vienna, Prinz Eugen Str. 18/12, 1040 Vienna, Austria
e-mail: Michael.Thir@gmx.at

A. Batthyány

Viktor Frankl Institute Vienna, Prinz Eugen Str. 18/12, 1040 Vienna, Austria

Viktor Frankl Chair of Philosophy and Psychology, International Academy of Philosophy,
Bendern, Principality of Liechtenstein
e-mail: alexander.batthyany@gmail.com

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practice-oriented initiatives (Castonguay et al. 2015; Strauss et al. 2015a, b). Yet, besides from these research approaches in psychotherapy, and the need for continuous empirical testing, another “client” of equal importance bolsters this demand: the clinical practitioner who works within the framework of a particular health care system and is thus confronted with a permanent, ubiquitous pressure of legitimization both towards other members of multidisciplinary teams of health care professionals and towards public agencies and health insurance companies.

This tenuous position naturally does not only apply to the profession of the psychotherapist as such, but also to the logotherapist. However, while the pressure of legitimization by the presentation of empirical outcome studies providing evidence for the usefulness of psychotherapeutic treatment towards various assessors affects all psychotherapy schools to the same extent, the characteristic basic approach of logotherapy is still to some degree determined by the way Frankl himself dealt with this situation—which fortunately is very well in line with current thinking on the empirical study of psychotherapy. Frankl pointed out that the ongoing demand subjecting any form of psychotherapy and logotherapy in particular to empirical outcome studies should be seen as an opportunity to benefit from: “We have no reason not to admit our need to find our discoveries supported by strictly empirical research” (Frankl in Fabry 1978, 5).

Research on Logotherapy: Past and Present

As much as psychotherapy in general, Viktor E. Frankl’s logotherapy and existential analysis has been the subject of empirical behavioral research since its emergence within the field of psychiatry and psychotherapy in the first half of the past century. Frankl’s early works do not only document the formation and progression of logotherapy and existential analysis, but also reveal a connection between theoretical development and efficiency research evidently existing from the first hour, thus illustrating the position of logotherapy “in the tension between the ‘empirical’ and ‘existential’ camps as a philosophically-grounded psychological model which allows itself, and even demands, to be subjected to empirical scrutiny and clinical outcome studies” (Batthyány 2011, 171).

Frankl’s main work was published in the years between 1946 and 1956 (Frankl 1946a, b, 1947, 1948, 1949, 1950, 1956). In contrast to his earliest articles on logotherapy (Frankl 1925, 1938a, b, 1939), these publications are not limited to pointing out the need for a meaning-centered approach towards the rehumanization of psychotherapy, but also describe its structural makeup and report case studies about the application of methods and interventions based on the newly created logotherapy. In the light of this, one article in particular, published together with another paper (Frankl 1959) provides an excellent summary of the main principles of Frankl’s theories and thus takes an exceptional position among early reports on the practice of logotherapy: *Results Drawn from the Clinical Application of*

Logotherapy by Kocourek et al. (1959) could be considered the first “modern” research report on logotherapy and existential analysis, i.e., one which is not only listing case studies, but also describes the results of a statistical analysis of the efficiency of the logotherapy treatment applied at the Poliklinik of Vienna.

This outset initiated the development of research on logotherapy, which resulted in a long history up to the present. In their annotated bibliography, Batthyány and Guttmann (2006) present a systematization of the historical progression of research on logotherapy, its initial point marked by the publication in English of *The Doctor and the Soul* in 1955 and *Man’s Search for Meaning* in 1959. Batthyány and Guttmann identify three consecutive research periods. The first is primarily based on case histories, with the central research question focusing on the clinical effectiveness of logotherapeutic interventions and lasted until around 1964. Then the focus shifted to questions regarding the operationalization of the main concepts of logotherapy. According to Batthyány and Guttmann (2006), Crumbaugh’s and Maholick’s Purpose-in-Life Test (1964) marks the beginning of research work concentrating on the development of psychometric tests and measurements, which also implied an advancement towards an objective research methodology as a reaction to critique on its initial, subjective and casuistic approaches. This second period lasted until the middle of the 1980s, and was followed by a third research period focusing on the clinical effectivity of logotherapy within a broad field of operation, covering not only psychotherapy in various settings but also for example industrial and organizational psychology (Levit 1992) and pedagogics (Hirsch 1995; Esping 2012).

In an updated research overview, Batthyány developed a new and advanced system of the historical consistency and development of research on logotherapy and existential analysis which will also serve as the framework for the following review. According to Batthyány’s new systematization, during the progress of research on logotherapy in a first period lasting until the year 1975 the foundation for the consecutive development was laid by testing the coherence and relevance of logotherapy’s motivation theory (will to meaning). On the basis of a large number of findings supporting the relevance of this motivation theory, two further areas of research emerged: (1) the impact of a sense of meaning on the pathogenesis of and the protection against mental states of suffering, and (2) logotherapy’s prediction that a restored sense of meaning may serve as a resource for both healing of and coping with mental health issues (Batthyány 2011). With the findings, which these research areas yielded, in addition to the motivation theory of logotherapy, its personality theory came into the view of empirical research and completed the theoretical foundation of logotherapy by including not only the will to meaning, but also self-transcendence and self-detachment, as “Frankl did not propose a series of mutually independent psychological hypotheses and therapeutic methods, but rather formulated a highly generative overall psychological model, which forms the basis for the development of logotherapeutic methods” (Batthyány 2011, 184).

Previous Reviews

Besides these proposed systematizations of the development of research on logotherapy and existential analysis, several systematic reviews summarizing past and recent findings provide an overview of the state of empirical research on logotherapy. By far the largest register of studies can be found in the bibliography of the *Viktor Frankl Institute Vienna* (Vesely and Fizzotti 2015), which covers a publication range from 1924 up to today and lists more than 1700 empirical and theoretical papers on logotherapy. Reviews focusing on the empirical research on logotherapy are given by Batthyány and Guttmann (2006) for the years of 1975–2005, covering a total number of 620 studies, by Batthyány (2011) for the years of 2005–2012, including 91 studies and by Schulenberg et al. (2008), who cover the publication range of 1972–2006 and include 65 studies. Especially notable is also the work of Hutzell (2000), who gives a commentary on the research findings published in the journal of the American Viktor Frankl Institute of Logotherapy, *The International Forum for Logotherapy*, and reviews 42 studies from the years of 1978–2000. In light of the systematic reviews at hand, the intention of the following review is to serve as a continuation by covering publications published since 2010, with a particular focus on three areas of interest: (1) psychometric instruments operationalizing the theoretical foundations of logotherapy, (2) findings about the impact of the sense of meaning and a purpose in life, especially on pathogenesis and resilience, and (3) clinical outcome research on the efficiency of logotherapeutic treatment.

Psychometric Instruments Measuring Purpose

As stated by Batthyány and Guttmann (2006), the research period between 1964 and the mid-1980s was particularly defined by the development of psychometric tests and measurements to operationalize Frankl's basic concepts, thus introducing logotherapy to the field of academic and clinical psychology. This highly productive period resulted in a broad range of psychometric works with findings well accepted and established at the present day within the research field on the construct of meaning in life. While Brandstätter et al. (2012) register a total of 59 measurement instruments on this topic, the following instruments excel by referring specifically to Frankl's theories: the *Logo Test* (Lukas 1971, 1986), the *Purpose-in-Life Test (PIL)*; Crumbaugh and Maholick 1964), the *Life-Purpose Questionnaire (LPQ)*, Hablas and Hutzell 1982), the *Seeking-of-Noetic Goals Test (SONG)*; Crumbaugh 1977a, b), and the *Meaning-in-Suffering Test (MIST)*; Starck 1983, 1985). Yet the focus of research on logotherapy tools is by no means limited to this period, although the research questions have been refined in the course of time. At present, the focus lies especially on the examination of the psychometric properties.

Regarding the *Logo Test*, created by Elisabeth Lukas, who is outstanding in her service to logotherapy, a revised version was developed by Konkoly Thege et al. (2010). Findings indicating insufficient reliability for the original *Logo Test* were reported by Konkoly Thege and Martos (2006), (Cronbach's $\alpha=0.43$ for the first

part, $\alpha=0.54$ for the second and $\alpha=0.20$ for the third part, overall reliability: $\alpha=0.59$ in a sample of $N=171$ Hungarian adolescents) and Gebler and Maercker (2007) (overall reliability: Cronbach's $\alpha=0.47$ in a sample of $N=17$ patients with PTBS). For the revised version *Logo Test-R*, Konkoly Thege et al. (2010) found an internal consistency of Cronbach's $\alpha=0.75$ in a sample of $N=852$ Hungarian participants, a statistically significant positive correlation with the *Purpose-in-Life Test* ($r=0.76, p<0.001$), indicating a sufficient convergent validity, and a negative correlation with symptoms of depression, operationalized by the *Beck's Depression Inventory* ($r=-0.80, p<0.001$).

The *Purpose-in-Life Test* (PIL) may be considered as the most popular instrument for the measurement of meaning according to Frankl's logotherapy. Recent findings in terms of the psychometric properties provide satisfactory results: Jonsén et al. (2010) in a Swedish adaption of the *PIL* in five samples with Swedish participants ($N=499$) found an internal consistency of Cronbach's $\alpha=0.82$ for a 20-item version and $\alpha=0.83$ for a 17-item version. A Spanish adaptation was tested by García-Alandete et al. (2011), who report an overall reliability of Cronbach's $\alpha=0.88$ in a sample of $N=309$ students. Brunelli et al. (2012) developed an Italian adaptation and found an overall reliability of $\alpha=0.91$ in a sample of $N=266$ cancer patients. In addition to the original version of the *PIL*, several revisions and modified versions have emerged over time (e.g., *PIL-R* by Harlow et al. 1987; *PIL-SF* by Schulenberg et al. 2011; *EPIL* by Law 2012; *PIL-10* items by García-Alandete 2014). For the *PIL-SF*, a modification consisting of four items, Schulenberg et al. (2011) reported a reliability of Cronbach's $\alpha=0.86$ in a sample of $N=298$ students. For the *EPIL*, a short form consisting of seven items of the original *PIL*, Law (2012) found a reliability of Cronbach's $\alpha=0.89$ in a sample of $N=2842$ early adolescents. García-Alandete (2014) created a Spanish ten-item version of the *PIL* and found an internal consistency of Cronbach's $\alpha=0.85$ in a sample of $N=180$ students. Furthermore, the internal structure of the *PIL* was investigated by Schulenberg and Melton (2010), who tested ten factor-analytic models for the original version of the *PIL* in a sample of $N=620$ students and found support for a two-factor model, thus giving an important impetus for future research on the properties of this instrument.

An Italian adaptation of the *Seeking-of-Noetic Goals Test* (*SONG*) was proposed by Brunelli et al. (2012) in a sample of $N=266$ cancer patients. They found the overall consistency to be highly sufficient with a Cronbach's $\alpha=0.90$. A factor-analytic evaluation of the original version of the *SONG* was given by Schulenberg et al. (2014) in a sample of $N=908$ students, the results of which support a two-factor model and provide an important contribution for further research.

The Impact of Sense of Meaning and Purpose in Life

Following the specification of the impact of sense of meaning and purpose in life on pathogenesis and resilience as proposed by Batthyány (2011) as an important area of research at present, recent findings document the continuing empirical evidence

verifying the theoretical model of logotherapy. Of interest are especially the following findings, which provide an important impetus for future research.

Park et al. (2010) stressed the correlation between presence of meaning in life, search for meaning in life, life satisfaction, happiness, positive and negative affect, and depression in a sample of $N=731$ adult participants. By conducting a multiple regression analysis the authors were able to give a differentiated view of the correlation between the search for meaning in life and well-being and to point out the interaction between the presence of meaning in life and the search for meaning: they found that participants who scored above 75 % for presence of meaning in life showed a positive correlation between the search for meaning and life satisfaction ($\rho=0.10$), while participants with a score below 75 % meaning in life showed a negative correlation ($\rho=-0.17$ to -0.22). According to Park et al. (2010) these findings indicate that it is easier to discover meaning once meaning is already established, while discovering meaning while having no meaning in life may be experienced more difficult and frustrating.

Steger et al. (2011) studied the relation between meaning in life and life satisfaction, as well as the moderating role of search for meaning on this relation in a sample of $N=151$ undergraduate students. They found the interaction between search for meaning and presence of meaning to be significant, ($\beta=0.18$, $p<0.005$, $\Delta R^2=0.03$, $\Delta F=6.00$, $p<0.05$), and the presence of meaning in life to be more strongly associated with life satisfaction among participants, who were more actively searching for meaning ($\beta=0.59$) compared to those, who were less actively searching for meaning ($\beta=0.29$). Following Steger et al. (2011), these results indicate that the correlation between the presence of meaning in life and life satisfaction is stronger for individuals, who are actively searching for meaning in life.

Similarly, Doğan et al. (2012) found in a sample of $N=232$ university students from Turkey that meaning in life significantly predicted the extent of subjective well-being ($R=0.58$, $R^2=0.34$, $F=59.281$, $p<0.001$). By conducting a regression analysis, the authors found that the presence of meaning in life positively affected subjective well-being ($\beta=0.56$; $p=0.000$), while the search for meaning negatively affected well-being ($\beta=-0.15$; $p<0.007$), and that meaning in life accounted for 34 % of the variance of the subjective well-being of the participants (Doğan et al. 2012).

Within the field of experimental studies on the theoretical assumptions of logotherapy, a notable contribution was made by Joshi et al. (2014), who subjected the complex of the logotherapeutic model to the investigation of the relationship between will to pleasure, will to power, search for meaning in life, presence of meaning in life, existential vacuum, existential frustration, and noogenic neurosis in a sample of $N=750$ college students. By using structural equation modeling, the authors tested four possible models explaining the relationship between these factors, of which two models proposed a frustrated search for meaning to cause noogenic neurosis, and two additional models explained existential frustration by a heightened will to power or will to pleasure (Joshi et al. 2014). An excellent match was found for a model stating will to power and will to pleasure to be affected by a latent variable noogenic neurosis (CFI=1.00, SRMR=0.02, ACI=44.86) and a model hypothesizing existential vacuum to be caused by will to power and will to

pleasure (CFI=1.00, SRMR=0.02, AIC=45.87) (Joshi et al. 2014). The best fit was found for a modification of the latter model by including static feedback loops between noogenic neurosis and existential vacuum and existential vacuum and search for meaning (CFI=1.00, SRMR=0.01, AIC=41.13), providing evidence for the theoretical framework of logotherapy and for the assumption that noogenic neurosis could be the result of a persistent cycle of meaninglessness (Joshi et al. 2014).

Several recent studies address the question about the impact of the sense of meaning in different groups specified by demographic and psychological characteristics. Bronk et al. (2010) conducted a study about the role of purpose in life among high ability adolescents in a sample of $n=64$ high ability students and $n=139$ typical students. No significant main effect for type of youth was found regarding the importance of purpose in life ($p=0.9820$), indicating that meaning in life was important both for high ability and typical students. The authors further examined possible development differences, with high ability students committing earlier to purpose in life than typical students and found a significant interaction between type of youth and age ($\chi^2=8.63$, $p=0.035$), which provides an indication for the hypothesized differences in the development of the commitment to a purpose in life.

The relationship between meaning in life, quality of life, and symptoms of anxiety and depression in the elderly was examined by Haugan (2014a) in a sample of $N=202$ nursing-home patients. The author found significant positive correlations ($p<0.01$) between meaning in life and hope ($r=0.586$), overall quality of life ($r=0.457$) and “quality of life: emotional functioning” ($r=0.326$), as well as significant negative correlations between meaning in life and symptoms of depression ($r=-0.555$) and anxiety ($r=-0.285$). The effect of meaning in life on multidimensional well-being (physical, emotional, functional, and social well-being) was further investigated by Haugan (2014b), again in a sample of $N=202$ nursing-home patients. Significant effects were found for meaning in life on emotional well-being (0.56 , $p<0.05$) and functional well-being (0.75 , $p<0.05$), as well as significant indirect effects of meaning in life on physical (0.33 , $p<0.05$) and social well-being (0.20 , $p<0.05$). These results indicate the importance of meaning in life for various dimensions of well-being for the elderly (Haugan 2014b).

Recent findings also document the function of meaning in life as a resource for resilience and as a preventive factor. Kalantarkousheh and Hassan (2010) studied the function of meaning in life on marital communication in a sample of $N=57$ spouse students and found a significant correlation between meaning in life and marital communication ($r=0.283$, $p=0.033$). Consequently the authors propose a new model for marital communication based on logotherapy.

The effect of structured meaningful extracurricular activities as protective factor for suicidal ideation was examined by Armstrong and Manion (2013) in a sample of $N=813$ secondary school students. The authors found significant negative correlation between meaningful engagement and suicidal ideation ($r=-0.14$), and risk factors such as depressive symptoms ($r=-0.11$) and risk behavior ($r=-0.09$), as well as significant positive correlations with protective factors such as self-esteem ($r=0.21$), number of supportive persons ($r=0.13$), and satisfaction with support ($r=0.10$). Furthermore, a regression analyses was conducted, which resulted in

significant correlations for the meaningful engagement with depressive symptoms ($t=-5.51$, $p<0.001$), risk behaviors ($t=-3.23$, $p=0.001$), self-esteem ($t=4.34$, $p<0.001$), and perceived social support ($t=3.28$, $p=0.001$) in relation to suicidal ideation (Armstrong and Manion 2013). Additionally, breadth of engagement was found to be a significant moderating variable between depressive symptoms ($t=-2.30$, $p=0.02$) and self-esteem ($t=3.34$, $p=0.001$) with suicidal ideation.

Henry et al. (2014) conducted a study on the potential effect of meaning in life on the relation between bullying victimization and suicidal ideation in a sample of $N=2936$ 6th–12th grade US students. The authors hypothesized that meaning in life could serve both as a mediator by explaining why bullying victimization leads to suicidal ideation and as a moderator by buffering the ill effect of bullying. The data analysis suggested a moderation model for the male participants and a mediation model for the female participants: for boys, at low levels of meaning in life bullying victimization was significantly and positively associated with suicidal ideation ($b=0.38$, $SE=0.09$, $p<0.001$), while at high levels of meaning in life victimization was not significantly associated with suicidal ideation ($b=0.07$, $SE=0.10$, NS). For girls, no moderation effects were found, but bullying victimization was associated significantly with lower meaning in life and lower meaning in life was associated significantly with suicidal ideation (Henry et al. 2014).

The impact of meaning in life on suicidal tendencies among a population at greater risk was examined by Wilchek-Aviad (2014) in a sample of $N=277$ adolescents, consisting of $n=162$ adolescents of Israeli origin and $n=115$ immigrants with Ethiopian origin. Overall significant negative correlations were found between meaning in life and suicidal tendencies ($r=-0.66$, $p<0.001$), depression ($r=-0.70$, $p<0.001$), and anxiety ($r=-0.49$, $p<0.001$). Further analysis with ANOVA revealed no significant differences in meaning between immigrant and native-born adolescents, $F(1;273)=0.44$, $\eta^2=0.002$, but the immigrants scored higher in suicidal tendencies ($F(1;273)=8.78$, $p<0.01$, $\eta^2=0.032$), depression ($F(1;273)=8.36$, $p<0.01$, $\eta^2=0.031$), and anxiety ($F(1;273)=5.30$, $p<0.05$, $\eta^2=0.02$) than the native-born adolescents.

The mediating effect of reflection on the relationship between the search for meaning, positive affect, negative affect, and positive meaning-finding was investigated by Boyraz et al. (2010) in a sample of $N=380$ bereaved individuals. By conducting a SEM, one model with a good match ($\chi^2=312.411$, $p<0.001$, CFI=0.96, IFI=0.96, SRMR=0.054, RMSEA=0.063) revealed significant indirect effects for search for meaning ($b=0.27\times 0.22$, $p<0.001$) and positive effect ($b=0.39\times 0.22$, $p<0.001$) on the finding of positive meaning, and a significant indirect negative effect for negative effect on positive meaning-finding ($b=-0.16\times 0.22$, $p<0.01$) (Boyraz et al. 2010). These results indicate the effect of reflection within the process of finding meaning after loss.

Boyraz et al. (2015) conducted a study on the relationship between three dimensions of death acceptance (neutral, approach, escape) and grief, and meaning in life as a possible mediating factor for the relationship between neutral death acceptance and grief symptoms in a sample of $N=160$ bereaved individuals. Significant negative correlations were found between the presence of meaning and grief symptoms

($r=-0.47$, $p<0.001$) and between the age of the deceased and grief ($r=-0.31$, $p<0.001$), as well as a significant positive correlation between neutral acceptance and presence of meaning ($r=0.23$, $p<0.01$). By conducting a hierarchical regression analysis, the authors found that after controlling for the co-variants (age of the deceased, relationship to the deceased, cause of death, time since loss, previous losses, pre-loss professional psychological help, post-loss professional psychological help), neutral acceptance of death significantly predicted grief ($\beta=-0.19$, $p<0.05$), while the other two dimensions of death acceptance showed no significant results (Boyras et al. 2015). The inclusion of the variable presence of meaning in life as a mediator and the conduction of a bootstrapping analysis resulted in a significant indirect effect of neutral attitude towards death on grief being mediated by the presence of meaning ($\beta=-0.08$, bootstrap SE=0.031), highlighting the role of presence of meaning in life for the negative relationship between a neutral acceptance of death and grief symptoms (Boyras et al. 2015).

Clinical Outcome Research

An essential subject of research is the outcome efficiency of logotherapeutic interventions in clinical studies. Also in this area there are several recent findings demonstrating the effectiveness of logotherapy for the clinical practice.

In line with the logotherapeutic prediction about both meaning in life as resilience factor in states of mental suffering and mental suffering as challenge for meaning in life, several studies have been conducted recently. Volkert et al. (2014) investigated the relationship of meaning in life to clinical diagnosis and psychotherapy outcome in a pre-, post-, and 6-months-follow-up design. The samples consisted of $n=214$ patients with clinical ICD-10-F-diagnosis and $n=856$ individuals from a nationally representative survey, who were used as a control group. Significantly lower meaning in life was found in patients with mental disorders at admission ($n=209$, $t=21.39$, $p<0.001$, $d=1.65$) and at discharge ($n=141$, $t=13.45$, $p<0.001$, $d=1.22$) compared to the control group (Volkert et al. 2014).

Min et al. (2013) conducted a study to identify characteristics associated with low resilience in a sample of $N=121$ patients diagnosed with depression and/or anxiety. The sample was divided into three groups (high vs. medium vs. low resilience) and a regression analysis was performed. Min et al. (2013) found, apart from spirituality, lower purpose in life to be significantly associated with the low- and medium-resilience group ($p=0.043$), thus indicating the role of meaning as a resilience factor in depression and anxiety disorders.

Mental Disorders and Psychological States of Suffering

In a study on the effectiveness of a 6-week logo-autobiography (guided autobiography based on the philosophy of existentialism and logotherapy) on Korean-American immigrant women ($N=47$) conducted by Bernstein et al. (2012), the treatment

group scored significantly lower on depressive symptoms ($F=4.86, p=0.002$) and significantly higher on purpose in life ($F=10.93, p=0.002$) compared to the control group both in the post-treatment assessment and in a 4-weeks follow-up assessment.

Cho et al. (2013) found similar results for a logo-autobiography treatment in a sample of $N=40$ Korean immigrant women diagnosed with depression in a non-randomized, quasi-experimental study: the treatment groups showed significantly lower scores on depressive symptoms than the control group ($F=6.832, p=0.013$; $F=19.800, p\leq 0.001$) and a higher score on meaning of life ($F=12.294, p=0.001$; $F=12.232, p=0.001$) in the post-treatment assessment as well as in the follow-up assessment.

Aguinaldo and de Guzman (2014) conducted a randomized pre-post-design study on the effectiveness of a logotherapy-based bibliotherapy on a sample of Filipino myasthenia gravis patients suffering from depression ($N=30$). Results showed significant differences between the treatment-group and the control-group in terms of depressive symptoms ($d=4.92, p=0.00$), regard towards life ($d=19.48, p=0.00$), and purpose in life ($d=4.24, p=0.00$).

Robatmili et al. (2014) conducted a RCT pre-post-follow-up-design study about the effect of a 10 week group logotherapy-treatment on meaning in life and depression in a sample of $N=20$ Iranian students. Results showed significant differences between the treatment- and the control-group regarding meaning in life both in the post-treatment-assessment ($F=290.48, p<0.001$) and in the 1-month follow-up measuring ($F=402.48, p<0.001$). Likewise, Robatmili et al. (2014) found significant differences for the depression score ($F=198.69, p<0.001$), which also remained significant in the follow-up assessment ($F=262.30, p<0.001$).

Moosavi et al. (2012) compared the efficiency of cognitive therapy and logotherapy on a sample of elderly Iranian men with depression ($N=45$) in a randomized pre-post design. Significant differences regarding symptoms of depression appeared both within the cognitive therapy-group ($MD=-3.53, p=0.000$) and the logotherapy-group ($MD=-2.47, p=0.000$) compared to the control group, while no significant difference was found between CT and logotherapy ($MD=-0.107, p=0.025$).

Shoaakazemi et al. (2012) examined the effect of an eight-session logotherapy treatment on the quality of life in a group of $N=24$ female students who survived the earthquake in the city of Bam (Iran) in 2003 and suffered from PTSD in a semi-experimental pre-post design study. Quality of life was measured using a 20-item version of the *WHOQOL* (WHOQOL Group 1998). The authors found significant differences between treatment and control group in physical health ($t=2.13, p<0.05$), psychological health ($t=6.58, p<0.001$), and life environment ($t=5.07, p<0.001$).

Drescher et al. (2012) examined the effect of meaning in life on satisfaction with life in persons suffering from mono-traumatization by measuring perceived effects (financial, social, emotional, and physical) of the disaster, meaning in life, self-efficiency, and satisfaction with life in a sample of $N=361$ individuals affected by the Gulf Oil Spill on the Mississippi Gulf Coast. A hierarchical multiple regression

showed a weak model accounting for perceived effects ($R^2=0.027$, ns) as a predictor for satisfaction with life, while an inclusion of the predictors meaning in life and self-efficiency resulted in an additional variance of 26% ($R^2=0.260$), which appeared to be significant ($F(2;354)=64.522$). Further, a semi-partial correlation to determine the relative importance of these two predictors revealed a greater effect of meaning in life on satisfaction with life (0.302) compared to self-efficiency (0.147), thus indicating the importance to include meaning-orientated approaches in the clinical treatment of persons suffering from the consequences of an ecological disaster.

Substance Abuse

The effect of meaning in life as a predictor for the efficiency of a treatment for cocaine abusers was subjected by Martin et al. (2011) in a sample of $N=154$ adults with cocaine dependence, who participated in a 30 days residential substance use treatment program. The authors found that a lower amount of meaning in life significantly predicted the use of cocaine ($B=-0.04$, $SE=0.016$, $OR=0.96$, $p<0.05$) and alcohol ($B=-0.05$, $SE=0.015$, $OR=0.96$, $p<0.05$), indicating that meaning-orientated interventions could serve as an important addition in the treatment of cocaine abuse.

Kleftaras and Katsogianni (2012) conducted a study on the relationship of meaning, spirituality, alcohol abuse, and depression in a sample of $N=200$ patients with alcohol abuse or alcohol dependence. Significant negative correlations were found between depressive symptoms and meaning in life ($r=-0.39$, $p<0.01$), personal meaning ($r=-0.37$, $p<0.01$), goal seeking ($r=-0.37$, $p<0.01$), and existential transcendence ($r=-0.24$, $p<0.01$). After dividing the sample by the degree of depressive symptoms (high vs. moderate vs. low depression), significant differences ($p<0.001$) were found regarding meaning in life ($\chi^2=42.72$), existential transcendence ($\chi^2=39.92$), personal meaning ($\chi^2=38.97$), and existential vacuum ($\chi^2=25.60$), thus indicating the importance to address the sense of meaning in persons suffering from alcohol dependence.

Schnitzer et al. (2013) examined the effect of depression and meaning in life in alcohol-using college student in a sample of $N=267$ US students. The correlations between meaning and alcohol use ($r=-0.17$, $p=0.006$) and depression ($r=-0.39$, $p<0.001$) appeared to be significant, but no significant correlation was found between depression and alcohol use ($r=0.009$, $p=0.13$). By conducting a hierarchical regression, for female students neither meaning nor depression significantly predicted alcohol use ($F(2;199)=2.42$, $p=0.09$, $R^2=0.02$), and for male students meaning and depression did not serve as individual predictors for alcohol use ($F(2;62)=1.10$, $p=0.34$, $R^2=0.03$), but the interaction between depression and perceived meaning was significant ($\Delta F(1;61)=5.19$, $p=0.03$, $\Delta R^2=0.08$) (Schnitzer et al. 2013). Further examination by comparing a high- vs. low-depression group revealing strong negative relationship between meaning

and drinking ($\beta = -2.69$, $t(61) = -2.43$, $p = 0.02$) was found for the low-depression group, while for the high-depression group, a strong positive relationship between meaning and alcohol use ($\beta = 2.28$, $t(61) = 2.10$, $p = 0.04$) appeared (Schnitzer et al. 2013).

The effect of meaning in life as a predictor for changes in smoking status was analyzed by Konkoly Thege et al. (2013) in a sample of $N = 4294$ Hungarian participants. Meaning in life was found to be significantly associated with the smoking status at the baseline assessment ($OR = 0.51$, $z = 3.48$, $p < 0.001$) and at the follow-up assessment ($OR = 0.61$, $z = 3.60$, $p < 0.001$), indicating that a lower amount of meaning in life is correlated with a higher probability of smoking. While meaning in life did not significantly predict the quitting or uptake of smoking, it differentiated significantly between stable smokers and stable nonsmokers both at the baseline assessment ($OR = 0.54$, $z = 2.80$, $p = 0.005$) and at the follow-up assessment ($OR = 0.64$, $z = 2.88$, $p = 0.004$) (Konkoly Thege et al. 2013).

Adaptation and Adjustment to Physical States of Suffering

Breitbart et al. (2010) conducted a RCT study using a pre-, post-, and 2-months-follow-up design on the effect of an 8-week *Meaning Centered Group Psychotherapy* (MCGP) treatment based on logotherapy, on spiritual well-being, meaning, hopelessness, desire for death, optimism/pessimism, anxiety, depression, and quality of life in patients with advanced solid tumor cancers (stage III or IV) in a sample of $N = 90$ patients assigned either to MCGP or a supportive group psychotherapy (SGP). A significant difference was found between the MCGP and the SGP group in the compliance of the participants ($t = 5.10$, $p < 0.0001$), as well as significant differences in the MCGP-group regarding the variables “spiritual well-being: total” ($t(36) = 4.38$, $p < 0.0001$), “spiritual well-being: meaning” ($t(36) = 4.51$, $p < 0.0001$), and “spiritual well-being: faith” ($t(36) = 2.44$, $p = 0.02$) for the pre-post-treatment assessment, and even larger improvements for the 2-months-follow-up assessment: “spiritual well-being: total”: $t(25) = 4.98$, $p < 0.0001$, “spiritual well-being: meaning”: $t(25) = 5.29$, $p < 0.0001$, “spiritual well-being: faith”: $t(25) = 2.73$, $p = 0.006$, while no significant differences were found for the SGP-group. A repeated measurement ANOVA was conducted on the group differences and resulted in $F = 5.05$, $p = 0.009$ for interaction and $F = 8.30$, $p < 0.001$ for the main effect. Regarding the variables hopelessness, desire for death and anxiety, the effects were approaching significance in the pre-post-treatment assessment for the MCGP-group (hopelessness: $t(49) = 1.88$, $p = 0.07$; desire for death: $t(50) = 1.76$, $p = 0.09$, anxiety $t(36) = 1.74$, $p = 0.10$) and reached significance at the follow-up assessment for desire for death ($t(25) = 2.09$, $p = 0.04$) and anxiety ($t(25) = 3.00$, $p = 0.02$) (Breitbart et al. 2010). For the SGP-group, significant differences appeared neither for the pre-post assessment nor for the follow-up assessment.

The effect of a group logotherapy treatment on the psychological well-being of infertile women was evaluated by Mosalanejad and Koolee (2013) in a sample of $N=65$ infertile couples, who were randomly assigned to a treatment group ($n=33$) receiving 12 sessions of group logotherapy within 3 months or to a control group ($n=32$). An ANCOVA resulted in significant differences for psychological distress in the treatment group ($t=3.06, p=0.004$), while the differences in the control group appeared to be not significant.

The role of meaning in life and depression on the adaptation to physical disabilities was subjected by Psarraa and Kleftaras (2013) in a sample of $N=511$ participants with paraplegia, quadriplegia, amputation, poliomyelitis, multiple sclerosis, or hemiplegia. A significant positive correlation was found between a high depression score and an existential vacuum ($r=0.75, p<0.01$), as well as a significantly negative correlation between depression score and meaning in life ($r=-0.84, p<0.01$). Furthermore, significant positive correlations were found between a positive adaptation to physical disabilities and meaning in life ($r=0.62, p<0.01$), negative adaptation and the presence of existential vacuum ($r=0.75, p<0.01$), and significant negative correlations appeared between meaning in life and negative adaptation ($r=-0.79, p<0.01$) and between positive adaptation and the presence of existential vacuum ($r=-0.52, p<0.01$) (Psarraa and Kleftaras 2013). The authors also found significant differences comparing a low vs. high meaning in life group regarding positive ($t=-7.16, p<0.0001$) and negative adaptation ($t=6.04, p<0.0001$) to physical disabilities.

Julom and de Guzmán (2013) evaluated the effectiveness of a logotherapy treatment by using a pre-post design in a sample of $N=32$ paralyzed inpatients, of whom $n=16$ received the treatment. They found that while the differences within both groups were significant, the differences in the treatment group were higher in the treatment-group for the *Purpose-in-Life Test* (treatment: $t=-15.19$, control: $t=-2.73, p<0.05$) and the *Life-Regard-Index* (treatment: $t=-31.65$, control: $t=-4.17$), thus indicating the effectiveness of the logotherapy treatment on paralyzed inpatients (Julom and de Guzmán 2013).

Gebler and Maercker (2014) subjected the effect of the addition of an existential perspective in a cognitive-behavioral group treatment in contrast to a conventional CBT treatment by using a quasi-experimental pre-post-follow-up design (3 and 6 months) in a sample of $N=113$ patients suffering from chronic pain. The authors found the changes of pain-related disability to be significant between the baseline and the post-treatment assessment ($F(1;111)=30.75, p<0.000$), the 3-months follow-up ($F(1;111)=9.53, p=0.003$), and the 6-months follow-up assessment ($F(1;111)=3.91, p=0.05$). Significant correlation effects appeared for all three assessment periods ($F(1;111)\geq 6.55, p\leq 0.012$). While for the existential CBT-treatment medium effect sizes were found for the post-treatment ($d_z=0.77$) and the 3-month follow-up ($d_z=0.52$) and a small effect size at the 6-month follow-up ($d_z=0.43$). A small effect size was found for the conventional CBT treatment for the post-treatment ($d_z=0.28$), and no effects appeared for the follow-up assessments, indicating that the addition of an existential perspective resulted in a

greater improvement of pain-related disability in chronic pain patients (Gebler and Maercker 2014).

Hosseinzadeh-Khezri et al. (2014) tested the impact of an eight session group-logotherapy treatment in a sample of $n=35$ patients with colorectal cancer undergoing chemotherapy treatment by using a pre-, post-, and 6-months-follow-up design. In the pre- and post-assessment, significant differences were found between the treatment group and a control group regarding social functioning ($t=2.20, p<0.05$), depression ($t=2.16, p<0.05$), and the total score of general health ($t=2.42, p<0.05$). In the follow-up assessment, no significant differences were found, which according to the authors implies the importance of continued meaning-centered interventions.

The effect of a ten-session group-logotherapy treatment on hope was investigated by Ebrahimi et al. (2014) by using a pre-, post-, and 1-month-follow-up design in a sample of $N=80$ leukemia patients, who were randomly assigned either to the treatment-group or the control-group. A covariance analysis showed significant results for the factors “pathway (goal-oriented) thinking” ($F=236.40, p<0.0001$) and “agency thinking” ($F=83.03, p<0.0001$). At the follow-up assessment, the differences remained significant ($F=150.60, p<0.0001$), indicating that the group-logotherapy treatment increased the hope expectancy in leukemia patients.

Scrignaro et al. (2014) investigated the effect of the search for meaning in promoting mental adjustment and eudaimonic well-being in a sample of $N=266$ cancer patients. They found that search for meaning had a significant total ($b=0.072$), direct ($b=0.057$), and indirect effect ($b=0.015$) on anxious preoccupation, a significant total ($b=0.53$) and indirect effect ($b=0.051$) on hopelessness, and a significant total ($b=-0.26$) and indirect effect ($b=-0.17$) on psychological well-being, indicating the effect of meaning on the adjustment towards states of suffering and psychological well-being.

Discussion and Future Perspectives

In an interview about the future of logotherapy conducted by Joseph Fabry (1978), Viktor Frankl commented on the status and attitude of logotherapy towards empirical research at the time by expressing his gladness “... whenever logotherapy is validated by experiments ... But we still need more experimentation and empirical validation ...” (Fabry 1978, 5–6). The objective of the present chapter is to give an answer to the following question: What is the state of research on logotherapy today, 37 years later? And what does this state imply for the future of research on logotherapy?

Together with the previous systematic reviews of the empirical research on logotherapy, we were able to retrace its progression and take a closer look at the enormous amount of findings providing evidence for the theoretical assumptions of logotherapy, the outcome effectiveness of its applications in various states of

suffering, the preventive function of the search for meaning and the presence of meaning in life as an important resilience factor, and the body of assessment instruments operationalizing different aspects of meaning in life according to Frankl's theory, especially their psychometric properties legitimizing their use both for clinical practice and empirical research. The studies included in this chapter document the fact that also for the current decade of the twenty-tens, logotherapy remains a subject of interest for research, and updated findings provide support for logotherapists facing the challenge of validating the position of logotherapy within both the fields of clinical health care practice and psychological research. Considering the spectrum of research (e.g., the proposed logotherapy-based robot interaction with elderly people reported by Masuta et al. 2014), an end of this development is certainly not in sight.

In this regard, a welcome growth of the research community can be observed in recent time, which is both encouraging and promising future contributions to the field of research on logotherapy. Especially notable is both the quantity and quality of recent contributions from South Korea and Iran, demonstrating the performance capacities of these growing research facilities. For example, Kim and Lee (2010) conducted a study on the correlation between social support, meaning in life and suicidal thoughts in cancer patients, Kim et al. (2013) report about the effects of a logotherapy program for early adolescents with cancer, and Kang et al. (2013) investigated the effects of logotherapy on depression for children.

As for Iran, the effectiveness of group logotherapy was examined on the life expectation of cancer patients (Hosseini et al. 2010), on the increase of life expectancy and health of female teenage Major Thalassemia patients (Golami et al. 2010; see also Nasiri et al. 2014), on patients with Multiple Sclerosis (Rasoli and Borjali 2011), on depression in breast cancer patients (Haghighi et al. 2012), in reducing job burnout (Asadi et al. 2012), on empty nest syndrome (Khaledian et al. 2013) and on reducing the frustration of disabled SCI patients (Esfandiari et al. 2014). The impact of logotherapy was further investigated in other fields, e.g., on marital satisfaction (Kalantarkousheh et al. 2012; Hamidi et al. 2013). A comparative study about the efficiency of logotherapy and guided imagery on depression, anxiety, and hopefulness in female cancer patients was conducted by Abolghasami et al. (2012). Furthermore, Ghodrati et al. (2010) report about interventions to improve the health of Multiple Sclerosis patients, Haditabar et al. (2013) report about increasing the quality of life among female students, and Tayyebi Ramin et al. (2014) about the quality of life of mothers of impaired children. Regarding the role of meaning in life as a predicting factor, recent studies on the relationship between meaning in life and general health (Talebzadeh Shoostari and Pourshafei 2012), depression, anxiety and stress status among college students (Dehdari et al. 2013), and about purpose in life and identity dimensions as predictors of maladaptive psychological aspects (Rahiminezhad et al. 2011) are also at hand. Further notable work comes, for example, from Malaysia about significant differences in self-esteem in narcotics abuse female prisoners from Sumatra (Maryatun 2013), and from Africa about the efficacy of a sense of meaning intervention amongst managers (Makola 2014).

Nevertheless, it seems important to look ahead by considering the implications of the present findings for future issues and by specifying areas of operation in need of attention.

In terms of the psychological assessments operationalizing the various aspects of logotherapy, Schulenberg et al. (2008) point out the need to examine the psychometric properties of the tools in use. Recent activities to examine these properties by conducting factorial analyses (e.g., *MIST*: Schulenberg et al. 2006; *PIL*: Schulenberg and Melton 2010; *SONG*: Schulenberg et al. 2014) are a positive development, which urgently needs to be perpetuated. The properties of the various translated versions in use and the standardization of the tools by providing representative clinical and normal samples might be considered upcoming topics of interest as well.

In terms of the subjection/subjectivation of the theoretical assumptions of logotherapy, Schulenberg et al. (2008) sum up the substantial operation of empirical research on logotherapy today: testing its theoretical assumptions using increasingly stringent research designs—a call one can only strongly encourage to pursue. The papers included in our review constitute important contributions towards this goal.

However, the importance of using stringent state of the art research designs does not only apply to the testing of the theoretical assumptions, but also to the clinical outcome research on logotherapy. Especially given the growing promotion of evidence-based clinical practice guidelines, an urgent need emerges to present recent empirical outcome studies on the effectiveness of logotherapy treatments in strictly defined psychological disorders and standardized diagnoses, thus enabling the inclusion of logotherapy as an efficient treatment option within evidence-based guidelines. In this regard, the utilization of standardized research designs, well-established within the research on psychotherapy, as well as commonly used psychological assessments (e.g., SCL-90-S, OQ, WHOQOL) is of growing/critical importance. Moreover, the evaluation of integrative treatment approaches, in terms of applying logotherapeutic interventions as an addition to treatment plans of other psychotherapeutic schools, seems to emerge as an important and interesting area of research (Schulenberg et al. 2008)—concordant with Frankl's outlook on the future of logotherapy, according to which “logotherapy is a system open in a twofold sense inasmuch as it is open toward its own evolution as well as toward co-operation with other schools” (Frankl 1982, 3).

Last but not least, regarding prospective systematic reviews, the production of systematic meta-reviews and the calculation of effect sizes seem to be an inevitable and necessary development to catch up with the state of the art in psychotherapy research, to meet the present demands of this field and to prepare logotherapy for the future.

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