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CHANGES IN WELL-BEING, SELF-EFFICACY, AND COPING STRATEGIES DURING RESIDENTIAL TREATMENT OF ALCOHOL-ADDICTED PATIENTS

The aim of the study was to answer the question about changes in self-efficacy, coping strategies, and well-being during residential alcohol addiction psychotherapy. Correlations between these changes were also explored. The participants were 60 patients of a specialized alcohol addiction treatment center attending structural-strategic residential group therapy. Self-efficacy, well-being (two indicators: satisfaction with life and depression), and coping strategies (four indicators: problem-focused, emotion-focused, and meaning-focused strategies plus seeking social support) were assessed twice: at admission and then at the end of the treatment, i.e., six weeks later. The tools used for this purpose were, respectively: Schwarzer et al.'s Generalized Self-Efficacy Scale (GSES), Diener et al.'s Satisfaction With Life Scale (SWLS), Beck Depression Inventory (BDI), and Gruszczyńska's Coping Questionnaire (KRS). The results of bivariate latent growth curve analysis with bootstrapping show a decrease in depression as well as an increase in strategies focused on problem, on meaning, and on seeking social support. All these changes were positively correlated, which indicates that the intensification of coping is connected with a decrease in depression. Additionally, pretest coping intensity was shown to moderate changes in satisfaction with life, which increased only in the "low copers" group. For the remaining variables, significant interindividual variances were found regarding both the starting points and the rates of change. Thus, results indicate the need for analyzing changes during treatment from two perspectives: in terms of group means and in terms of variance around these means, which capture interindividual variability in the change process.

Keywords: therapy, alcohol addiction, changes, well-being, self-efficacy, coping with stress.

INTRODUCTION

Alcohol addiction treatment poses a constant challenge for researchers as well as for practitioners, mainly due to its relatively low effectiveness. The proportion of people who maintain abstinence after its completion varies between 20% and 50% (e.g., Grønbaek & Nielsen, 2007; Kucińska & Mellibruda, 1997; Miller, Walters, & Bennett, 2001), and about a half of the patients fail to complete their treatment (Chodkiewicz, 2006; Mellibruda & Włodawiec, 1997).

Efforts to improve the effectiveness of psychotherapy concentrate on analyzing the role of specific factors – i.e., ones typical for a given therapeutic school – as well as non-specific ones, being the characteristics of patients and patient-therapist relationships (Cooper, 2010). Since in the case of alcohol addiction the effectiveness of therapies based on different models turns out to be roughly the same (e.g., Norman et al., 2010; Raytek, Morgan, & Chung, 2005; cf. also Project MATCH Research Group, 1997), research focuses on identifying non-specific treatment factors, associated, for example, with patients' individual resources and deficits (cf. Cierpiałkowska & Kubiak, 2010). A detailed description of research findings lies beyond the scope of this paper; still, certain regularities are worth noting. Despite clear differences concerning measurement tools and study groups, factors such as self-efficacy, the sense of coherence, social support, and active coping strategies consistently show positive correlations with treatment completion and the maintenance of abstinence (e.g. Adamson, Sellman, & Frampton, 2009; Chodkiewicz, 2005, 2006; Humphreys et al., 1999; Levin, Ilgen, & Moos, 2007). A majority of results also prove that high anxiety and depression as well as the use of avoidance coping strategies play a negative role in the therapeutic process and the subsequent maintenance of abstinence (Chodkiewicz, 2006; Gamble et al., 2010; Willinger et al., 2002). Finally, studies on the quality of life, increasingly popular in recent years, indicate that its low level contributes towards therapy interruption and abstinence breach (Foster et al., 1998; Laudet & White, 2008).

The Polish research regarding the relations between the patients' characteristics and psychotherapy effectiveness are usually cross-sectional (evaluation only at admission or at the end of therapy), which makes it impossible to conclude what changes occur during alcohol addiction treatment (cf. Chodkiewicz, 2012). This is a considerable limitation, since all addiction models and all therapies based on these models assume that in the therapeutic process a number of significant changes in intrapsychic and interpsychic mechanisms sustaining addiction should occur. The occurrence of those changes is treated as a necessary condition

to maintain permanent abstinence and live a satisfactory life (Beck et al., 2007; Cierpiałkowska & Ziarko, 2010).

The above assumptions are also present in the program of therapy for alcoholics applied in Poland, designed by J. Mellibruda and his research team, called the structural-strategic approach. On the one hand, this approach is based on the assumptions underlying the so-called Minnesota Model (Anderson, 1993), in which addiction is viewed as an incurable, progressive, and potentially fatal disease, whose treatment should draw on the experience of the Alcoholics Anonymous movement. On the other hand, it rests on the assumptions of cognitive-behavioral and interactive therapy (Cierpiałkowska & Ziarko, 2010; Cierpiałkowska & Kubiak, 2010). The psychotherapy of addiction following this approach postulates the necessity of a number of changes occurring in its course: changes concerning behaviors and attitudes as well as emotional, cognitive, and self-image-related processes (Mellibruda, 1997; Mellibruda & Sobolewska-Mellibruda, 2006).

Attempts are made to monitor those changes by means of longitudinal studies, but these are relatively rare. Such studies indicate that treatment may lead to changes concerning emotional regulation and cognitive processes as well as coping. Namely, the following have been observed: a change in thinking about alcohol and an increase in perceived support from family and friends (Orford et al., 2006), an increase in the ability to cope with difficulties and a decrease in psychopathology (Kucińska & Mellibruda, 1997), an intensification of coping by planning accompanied by a decrease in denial (Chodkiewicz, 2001), as well as a decrease in emotion-oriented and avoidant-distractive coping styles, accompanied by an increase in task-oriented and avoidant-social coping styles (Mroziak, Wójtowicz, & Woronowicz, 1999). Finally, studies concerning the quality of life show its increase both during alcohol addiction treatment and during the maintenance of abstinence (Donovan et al., 2005; Lahmek et al., 2009). However, it should be noted that some studies indicate that the increase in life satisfaction does not concern the entire group undergoing therapy, which argues for the existence of interindividual variability in this respect, and that transformations within coping may have a more complex character and may not concern all coping methods to the same degree (cf. Chodkiewicz, 2001). Summing up, it can be observed that even though the occurrence of various changes during treatment has been demonstrated, the questions of interrelations between them remain unanswered, despite the crucial practical significance of this issue. Research within this problem area should focus primarily on residential therapy, since it turns out to be definitely less effective in Poland than outpatient treat-

ment: the percentage of people maintaining full abstinence after these kinds of therapy is 20% and 52%, respectively (Kucińska & Mellibruda, 1997).

In view of the above, the following research questions were posed:

1) Are there positive changes in self-efficacy, psychological well-being, and coping strategies between the beginning and the end of residential alcohol addiction psychotherapy?

2) Do changes in self-efficacy, psychological well-being, and coping strategies depend on the initial values of these variables and do these changes differ between individuals?

3) Is there a relationship between changes in coping strategies and changes in psychological well-being or in self-efficacy?

It was decided that psychological well-being should be approached in two aspects: as satisfaction with life (positive well-being) and as depression (negative well-being), which reflects a current tendency in studies on alcohol dependency (cf. e.g. Ginieri-Coccosis et al., 2007). Of the coping strategies, in addition to problem-focused, emotion-focused, and seeking social support strategies, meaning-focused coping was also included, which is a novelty, introducing Folkman's modification (2008) to the classical model of stress and coping. She found that meaning-focused coping plays an important role in maintaining well-being despite prolonged chronic stress (Folkman, 1997). The basic function of these strategies is a positive reappraisal of and looking for meaning in both the current difficult situation and one's own activity in it.

It was, therefore, expected that during treatment changes would occur concerning psychological well-being and coping strategies. More specifically, an increase in positive well-being and a decrease in negative well-being was expected. Likewise, it was hypothesized that the intensity of meaning-focused, problem-focused, and seeking social support strategies would increase. The research question of emotion-focused coping was left open. Drinking alcohol plays an important role in emotion regulation and changes in these processes are one of the aims of alcohol addiction treatment (Mellibruda & Sobolewska-Mellibruda, 2006). However, the empirical findings are inconclusive in this respect – namely, both positive and negative effects of emotion-focused coping are found, depending on the model applied (Ivory & Kambouropoulos, 2012; Veenstra et al., 2007). We also expected that self-efficacy would increase during the therapy because according to Marlatt and Gordon's (1985) cognitive-behavioral model of relapse (cf. also Marlatt, 1985), which the Polish structural-strategic approach is also based on, self-efficacy increases with the extension of abstinence time, especially as a result of positive experiences in coping with alcohol craving. At the

same time, interindividual variability of these changes was assumed to exist: in keeping with Hobfoll's (2006) perspective, we expected that people with higher initial resources – that is, with higher psychological well-being and self-efficacy – would first of all experience their further increase.

Finally, we assumed that, in agreement with the psychotherapy model, the changes described would be correlated, meaning that a change in coping strategies would correspond with a change in self-efficacy and well-being. Because these latter constructs are considered to be more stable and less prone to modification, we assumed that it would be the change in coping strategies – namely, at the behavioral, cognitive, and emotional levels – that would constitute the basic mechanism of change (Chung et al., 2001). Still, due to the complexity of the therapeutic process, we retained the concept of correlated change, without indicating cause-and-effect relationships.

METHOD

Participants

A total of 74 alcohol-addicted adults participated in the study¹; 60 of them completed it, which is 81% of the initial sample. All participants met the ICD-10 criteria for alcohol addiction, which was confirmed by psychiatric examination. Completers were 12 women and 48 men, aged from 22 to 66 years ($M = 45.3$, $SD = 10.05$, normal distribution, with $K-S = 0.055$, ns). The proportion of participants in intimate relationships was slightly higher (55%) than that of single participants (45%); 68.5% had children; 28.3% participants had higher, 43.3% secondary, and 21.7% vocational education. A majority (65%) reported a problem drinking period lasting over 10 years and one in two participants admitted that there had been an alcohol problem in their families of origin.

Tools

Beck Depression Inventory (BDI). The negative aspect of well-being was estimated using A. Beck's *Self-Rating Depression Inventory*, in the Polish adaptation by Parnowski and Jernajczyk (1977). This tool comprises 21 categories describing potential depressive symptoms, with four answers to choose from: participants score 0 points for behaviors with no such symptoms and 4 points for

¹ The data were collected by Katarzyna Sagadyn as M.A. thesis material.

those that show their high intensity. The indicator is calculated by adding up the points. Its higher values indicate a greater intensity of symptoms. Reliability, measured by Cronbach's alpha, was .90 in the first assessment and .86 in the second one.

The Satisfaction With Life Scale. The positive aspect of well-being was measured with Diener et al.'s *Satisfaction With Life Scale* (SWLS) in the Polish adaptation by Juczynski (2001). The scale consists of five items, which participants rate on a seven-point scale by indicating the extent to which they agree with a given statement (from 1 = *totally disagree* to 7 = *totally agree*). The ratings are then added up, and the result reflects the overall level of satisfaction with life. Cronbach's alpha coefficient in our study was .82 in the first and .86 in the second assessment, respectively.

The Generalized Self-Efficacy Scale. Self-efficacy was measured with the Polish version of the *Generalized Self-Efficacy Scale* (GSES), developed by Schwarzer, Jerusalem, and Juczynski (Juczynski, 2001). The questionnaire comprises 10 statements with a four-point Likert-type scale (from 1 = *no* to 4 = *yes*). The indicator is calculated by adding up the points; its higher values represent higher self-efficacy. Cronbach's alpha in our study was .89 in the first and .90 in the second assessment.

The Coping Questionnaire. Coping strategies were evaluated using Gruszczyńska's *Coping Questionnaire* (KRS), which takes into account Folkman's modification of the stress and coping model. Apart from the traditional functions of coping behaviors, i.e. emotion-focused and problem-focused, this tool also identifies meaning-focused strategies. It was developed based on statements from other commonly used coping operationalizations (WCQ, Lazarus & Folkman, 1984; CISS, Endler & Parker, 1990; COPE, Carver, Scheier, & Weintraub, 1989), plus additionally generated items describing activities aimed at seeking meaning in stressful situations and investing them with meaning. In this way, the experimental version was obtained, comprising 51 statements with a 5-point Likert scale (from 1 = *I definitely didn't behave like this* to 5 = *I definitely behaved like this*). The hypothesized factor structure was verified by an exploratory factor analysis with varimax rotation. The procedure yielded a clear structure of three theoretically expected subscales: problem-focused strategies (13 statements, e.g., *I try to work out a strategy or plan specifying what should be done*), emotion-focused strategies (11 statements, e.g., *I do anything, just to forget about my own emotions*), and meaning-focused strategies (13 statements, e.g., *I tell myself that everything that happens in my life is meaningful*) – plus a supplementary subscale, labeled as seeking social support (5 statements, e.g. *I seek support and*

understanding from others). Thus, turning to people for help or seeking their company in the face of difficulties appeared to be a behavior qualitatively different than those described by the remaining statements. Due to the specificity of alcohol addiction, this subscale was included in the version of the tool used in the present study. Initial information concerning the discriminant validity of the subscales points to their functional differences among alcohol-addicted patients during the recovery process (Kaczmarczyk, 2011; Markiewicz, 2011).

Ultimately, by adding up items and then, due to their different numbers, averaging the total, four coping indices were obtained: problem-focused, emotion-focused, meaning-focused, and seeking social support. Cronbach's alpha for the subscales were, respectively: .89, .80, .78, and .81 in the first survey and .91, .54, .94, and .83 in the second one. As can be seen, for emotion-focused coping the coefficient is below satisfactory value in the final assessment. This issue will be raised in discussion.

PROCEDURE

The study had a longitudinal character and took place at an addiction treatment center accredited by the State Agency for the Prevention of Alcohol-Related Problems (PARPA), conducting residential therapy based on the structural-strategic approach. The psychotherapy following this approach comprises a number of procedures and techniques, such as educational activities (education and microeducation), self-analyses of events from the patient's life, the provision of constructive behavior patterns, the practice of skills important in building a life without alcohol, the introduction of patients to the AA 12-Step Program, especially to the first step, which is the recognition of one's own helplessness against alcohol, and encouraging them to participate in AA meetings (Mellibruda & Sobolewska-Mellibruda, 2006). The first assessment took place before the beginning of the therapy and the next one was carried out after its completion, six weeks later. Each time, after obtaining the participants' informed consent, coping strategies, self-efficacy, and both aspects of psychological well-being were assessed.

STATISTICAL ANALYSIS

The assessment of change is traditionally carried out using the repeated measure analysis of variance. Yet, this method has a major weakness. Namely,

it concerns exclusively those findings that manifest themselves at the level of group means, treating intra-group diversity as a source of error in capturing the regularities that hold for the entire group, which results in imposing certain preconceptions on covariance between measures (Konarski, 2004). This inspired the development of such statistical models that not only determine change with greater precision at the group level but also capture its interindividual variability (Hser et al., 2001). One of such methods is latent growth curve analysis (LGC, Duncan et al., 1999). It involves a shift in emphasis compared to traditional (M)ANOVA, which means that change is examined primarily at the individual level, with the group trajectory being determined, as it were, in addition and based on the average value of individual changes. Because the present study was intended to examine correlated change, i.e. to investigate how the intensity of two constructs covaries between the beginning and the completion of the therapy, bivariate LGC analysis was applied (McArdle, 2009). It is presented in Figure 1. As can be seen, two measurements of a and b variables are conceptualized here in the form of two latent variables: intercept and slope. Values indicated as M with subscripts are mean intercepts and mean rates of change in the study group. Values indicated as V with subscripts refer to variance around the means, i.e., they inform about group diversity regarding intercepts and slopes. This makes it possible simultaneously to describe the normative character of the studied process and to investigate divergences from it. Moreover, analysis of covariance between latent factors allows to identify the following relations:

- the relation between intercepts, or – in this case – between the values of a and b variables at the beginning of therapy (cov_C);
- the relation between slopes, namely between a and b changes during the survey period (cov_D), tantamount to the occurrence of correlated change;
- the “autoregressive” relation between intercept and slope, that is, the relation between the initial value and change size of the same variable (cov_A and cov_B);
- the “cross” relation between intercept and slope, that is, the relation between initial values of one variable and the size of change in the other (cov_E and cov_F).

In the case of models based on only two measurements (pretest and posttest), there is no possibility to assess goodness of fit due to zero degrees of freedom (the number of known parameters minus the number of estimated parameters is 0). Such a model is only identifiable but allows to obtain the values of the parameters of relations between variables described above (cf. Duncan et al., 1999). Due to the small size of the sample, the analysis was supplemented with

the bootstrap method, consisting in multiple sampling with returns of the original sample; this enables more accurate assessment of estimation errors, which then serve to build confidence intervals (Nevitt & Hancock, 2001). In this study, the number of such trials using benchmark data was established at 200. All calculations were performed using IBM SPSS Statistics 20 and IBM SPSS Amos 19 software.

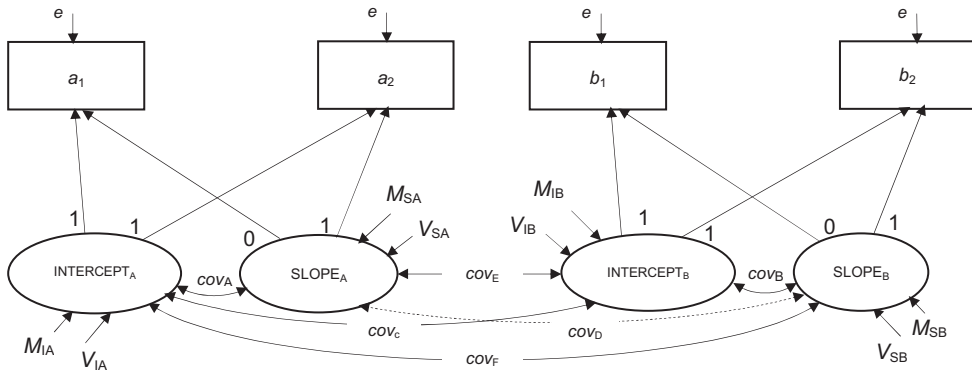


Figure 1. Bivariate model of latent growth curves

a_1 , a_2 as well as b_1 and b_2 = indices of the two studied constructs before and after therapy, respectively; e = measurement errors; M_{IA} and M_{IB} = mean initial values of constructs a and b ; V_{IA} and V_{IB} = variance around the mean initial value for constructs a and b ; M_{SA} and M_{SB} = mean values of change for constructs a and b during the study period; V_{SA} and V_{SB} = variance around the mean change for constructs a and b ; cov_C = correlation between intercepts; cov_D = correlation between slopes (correlated change, marked with a dotted line); cov_E = correlation between intercept for construct b and slope for construct a ; cov_F = correlation between intercept for construct a and slope for construct b .

RESULTS

Missing Data Analysis and Descriptive Statistics of the Variables

Firstly, missing data analysis was performed. The maximum amount of data missing is 10% and concerns the assessment of emotion-focused and problem-focused strategies in the first assessment. Little's test ($\chi^2 = 151.69$; $df = 135$; $p = .155$) indicates, however, that all the missing data are missing completely at random (MCAR, Graham, 2009). With this in view, imputation of missing data

was applied using the Full Information Maximum Likelihood method (FIML), whose advantage over removing such observations or replacing them with means or linear interpolations has been demonstrated (Enders & Bandalos, 2001).

Table 1 presents descriptive statistics and relations between study variables, including potential confounders reduced to the binary form. Their relations with main variables turn out to be few and moderate. Further results, however, are statistically controlled for the most significant of these relations, namely those between satisfaction with life and alcohol problem in the family of origin as well as between self-efficacy and education.

Table 1
Descriptive Statistics and the Matrix of Correlation Between the Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1 SWLS_1	1																		
2 GSES_1	0.49*	1																	
3 BDI_1	-0.49*	-0.41*	1																
4 SWLS_2	0.26*	0.01	-0.18	1															
5 GSES_2	0.18	0.68*	-0.41*	0.09	1														
6 BDI_2	-0.18	-0.16	0.51*	-0.36*	-0.37*	1													
7 S_emotions_1	0.37*	0.17	-0.36*	-0.12	0.01	0.04	1												
8 S_problem_1	0.32*	0.28*	-0.41*	-0.05	0.25	-0.17	0.78*	1											
9 S_meaning_1	0.34*	0.31*	-0.46*	-0.03	0.23	-0.07	0.67*	0.78*	1										
10 S_support_1	0.15	0.00	-0.20	-0.19	0.00	0.05	0.64*	0.75*	0.67*	1									
11 S_emotions_2	0.22	0.20	-0.26*	0.25	0.20	-0.28*	0.31*	0.31*	0.28*	0.26*	1								
12 S_problem_2	0.07	0.33*	-0.15	0.00	0.47*	-0.35*	0.22	0.34*	0.28*	0.27*	0.27*	1							
13 S_meaning_2	0.04	0.22	-0.19	0.00	0.32*	-0.27*	0.24	0.31*	0.35*	0.35*	0.34*	0.88*	1						
14 S_support_2	0.07	0.09	-0.06	0.05	0.25	-0.13	0.24	0.30*	0.24	0.43*	0.30*	0.79*	0.84*	1					
15 sex	-0.17	-0.11	0.06	0.15	0.00	0.09	-0.13	-0.19	-0.09	-0.33*	-0.19	-0.22	-0.17	-0.25	1				
16 age	0.18	0.01	-0.01	0.08	0.02	0.21	0.19	0.26*	0.17	0.17	0.01	-0.12	-0.07	-0.05	-0.07	1			
17 education	0.22	0.17	-0.20	0.08	0.30*	-0.32*	-0.18	-0.09	-0.07	-0.19	-0.10	0.05	-0.01	-0.14	-0.09	0.20	1		
18 relationship	-0.18	0.00	-0.08	-0.03	0.14	0.05	0.02	0.02	0.21	0.18	0.15	0.23	0.30*	0.29*	0.05	0.02	-0.21	1	
19 alcohol	-0.32*	-0.10	0.08	-0.45*	-0.07	0.24	-0.04	0.02	-0.01	0.19	-0.13	0.10	0.06	0.09	-0.08	-0.22	-0.28*	-0.03	1
<i>M</i>	15.75	28.36	17.0	16.92	29.24	9.92	3.58	3.64	3.95	3.58	3.69	3.91	4.21	3.86	0.80	45.30	0.33	0.55	0.50
<i>SD</i>	6.72	5.28	10.28	6.19	4.94	7.28	0.68	0.73	0.84	0.94	0.61	0.64	0.66	0.74	0.40	10.06	0.47	0.50	0.50

Note. SWLS = satisfaction with life, GSES = self-efficacy, BDI = symptoms of depression, S_emotions = emotion-focused strategies, S_problem = problem-focused strategies, S_meaning = meaning-focused strategies, S_support = seeking social support strategies; the figures next to the abbreviations indicate the measurement time 1 = before therapy, 2 = after the completion of therapy; categorical variables are coded as follows: Sex (0 = woman, 1 = man), Education (0 = secondary or lower, 1 = higher), Relationship = being in intimate relationship (0 = no, 1 = yes), Alcohol = alcohol problem in the family of origin (0 = no, 1 = yes); *M* = mean, *SD* = standard deviation

* $p < .05$

Change in Well-Being, Self-Efficacy, and Coping Strategies as Well as Its Diversity

Table 2 contains data concerning the initial state and the change in the studied constructs during the survey period. As can be seen, there is marked diversity in the baseline levels of well-being and coping strategies as well as in the size of change in these values (significant values of all the variances around the means). A significant slope was found for depression (a decrease, $M_S = -6.92$; $p < .001$) as well as for problem-focused strategies (an increase, $M_S = 0.25$; $p = .02$), meaning-focused strategies (an increase, $M_S = 0.27$; $p = .02$), and seeking social support strategies (an increase, $M_S = 0.28$; $p = .02$). Summing up, only in the case of these variables is it possible to speak of certain general tendencies; changes in the remaining variables show only interindividual variability. This means that there are individuals in the group who can achieve final results diverging from those achieved by others in terms of both the size and the direction of change. Also, high initial values of all variables limit the size of change. Thus, participants beginning therapy with higher self-efficacy and satisfaction with life as well as with higher coping intensity experience smaller increases in these variables in the course of treatment. The situation is somewhat different in the case of depression: the stronger its initial symptoms, the greater their decrease.

Table 2

Mean Intercept and Slope, Variance Around Mean Intercept and Slope, and Correlation Between Intercept and Slope for the Study Variables, with 95% Bootstrap Confidence Intervals

Variables	Intercept				Slope				Correlation between intercept and slope	
	Mean (M_I)	95%CI	Variance (V_I)	95%CI	Mean (M_S)	95%CI	Variance (V_S)	95%CI	Value	95%CI
SWLS	15.75*	(13.84; 17.75)	43.59*	(30.62; 54.56)	1.04	(-0.96; 3.68)	61.13*	(36.25; 83.21)	-.64*	(-.77; -.44)
BDI	16.87*	(14.17; 19.62)	103.22*	(69.51; 124.58)	-6.92*	(-9.33; -4.58)	80.01*	(51.33; 107.77)	-.73*	(-.86; -.56)
GSES	28.47*	(27.18; 29.48)	27.68*	(21.84; 36.27)	0.83	(-0.14; 1.69)	16.51*	(11.62; 22.35)	-.73*	(-.87; -.57)
S_emotions	3.57*	(3.40; 3.75)	0.41*	(0.26; 0.55)	0.12	(-0.06; 0.30)	0.49*	(0.34; 0.73)	-.60*	(-.72; -.35)
S_problem	3.64*	(3.44; 3.79)	0.47*	(0.31; 0.70)	0.28*	(0.06; 0.44)	0.58*	(0.40; 1.00)	-.64*	(-.79; -.44)
S_meaning	3.95*	(3.72; 4.16)	0.64*	(0.45; 1.05)	0.26*	(.02; .45)	0.71*	(0.45; 1.20)	-.71*	(-.85; -.48)
S_support	3.58*	(3.25; 3.78)	0.83*	(0.55; 1.12)	0.28*	(0.03; 0.48)	0.62*	(0.52; 1.24)	-.67*	(-.82; -.46)

Note. SWLS = satisfaction with life, GSES = self-efficacy, BDI = symptoms of depression, S_emotions = emotion-focused strategies, S_problem = problem-focused strategies, S_meaning = meaning-focused strategies, S_support = seeking social support strategies; M_I = mean initial value for the whole group, M_S = mean change value for the whole group, V_I = variance around the initial mean, V_S = variance around the change mean

* $p < .05$

Co-Occurrence of Changes in Well-Being and Self-Efficacy With Changes in Coping Strategies

As can be seen in Table 3, the number of significant correlations is the highest for depression, a comparable number of them were found for satisfaction with life, and the fewest for self-efficacy. High BDI values at the beginning of therapy are accompanied by lower intensity of all the coping strategies, although this result remains insignificant for seeking social support (cov_C). Correlations are somewhat stronger for meaning-focused and problem-focused strategies and weaker for emotion-focused ones. An increase in the intensity of all the strategies is accompanied by a decrease in depression (cov_D). Even though cause-effect inference has only a probabilistic character here and requires further study, the fact that a significant relation is consistently found between the initial values for emotion-focused strategies and the change in depression (cov_E), with no significant reverse relation (cov_F), suggests that it may be an intensification of this type of coping that results in mood improvement in the study group, not conversely (cf. Curran, 2000). When it comes to problem-focused and meaning-focused strategies, these relations have a more complex character of mutual influences with the same sign, which suggests positive feedbacks.

Table 3
Correlations Between Intercept and Slope for Pairs of the Studied Variables with 95% Bootstrap Confidence Intervals

Variable <i>a</i>	SWLS							
	cov_C	95%CI	cov_D	95%CI	cov_E	95%CI	cov_F	95%CI
S_emotions	.35*	(.15; .56)	.38*	(.17; .56)	-.38*	(-.57; -.18)	-.20	(-.43; .12)
S_problem	.30*	(.10; .49)	.21	(.00; .43)	-.29*	(-.50; -.04)	-.21	(-.50; .00)
S_meaning	.31*	(.10; .49)	.25*	(.06; .42)	-.29*	(-.50; -.09)	-.27*	(-.52; -.01)
S_support	.14	(-.06; .36)	.25*	(.07; .48)	-.26*	(-.47; -.06)	-.09	(-.40; .16)
	BDI							
S_emotions	-.34*	(-.55; -.09)	-.36*	(-.57; -.11)	.41*	(.13; .65)	.12	(-.16; .39)
S_problem	-.37*	(-.51; -.19)	-.36*	(-.56; -.16)	.32*	(.11; .57)	.21*	(.02; .45)
S_meaning	-.44*	(-.58; -.23)	-.40*	(-.62; -.23)	.44*	(.27; .65)	.28*	(.06; .50)
S_support	-.19	(-.44; .00)	-.30*	(-.54; -.09)	.25	(-.03; .45)	.15	(-.05; .40)
	GSES							
S_emotions	.17	(-.05; .41)	.19	(-.04; .40)	-.20	(-.42; .08)	-.03	(-.34; .27)
S_problem	.27*	(.01; .48)	.17	(-.07; .39)	-.06	(-.32; .17)	.02	(-.28; .33)
S_meaning	.31*	(.03; .55)	.20	(.00; .42)	-.13	(-.36; .09)	-.13	(-.44; .14)
S_support	.00	(-.24; .23)	.15	(-.13; .40)	.00	(-.23; .27)	.08	(-.26; .31)

Note. SWLS = satisfaction with life, GSES = self-efficacy, BDI = symptoms of depression, S_emotions = emotion-focused strategies, S_problem = problem-focused strategies, S_meaning = meaning-focused strategies, S_support = seeking social support strategies; cov_C = correlation between intercepts; cov_D = correlation between slopes (correlated change); cov_E = correlation between intercept for coping strategies and slope for SWLS, BDI, or GSES; cov_F = correlation between SWLS, BDI, or GSES intercept and slope for coping strategies

* $p < .05$

As regards satisfaction with life, the situation is the reverse of that observed for depression and coping. In this case, higher intensity of all the coping strategies corresponds with higher initial satisfaction with life; again, only for seeking social support the correlation does not reach the level of statistical significance (cov_C). Unlike for depression, the change in emotion-focused, meaning-focused, and support-focused strategies correlates with the change in SWLS. Only problem-focused coping, then, is excluded from this tendency. The positive sign of these correlations informs that an increase in one variable is accompanied by an increase in the other one (cov_D). Further correlations suggest that it is strategies that influence SWLS changes rather than the other way around. Namely, higher initial levels of all the strategies are associated with lower SWLS change (cov_E). The situation is more complex only for meaning-focused coping, whose initial level correlates negatively with SWLS change (cov_E), and where at the same time initial SWLS level lowers the size of change of these strategies (cov_F). The inclusion of alcohol problem in the family of origin as a covariate had no significant influence on these relations.

The fact that the mean group SWLS change was insignificant (cf. Table 2) suggests that initial strategy values may be a moderator of this change. In order to check that, additional analyses were performed, comparing two groups formed on the basis of data clustering, with one group showing lower intensity and the other showing higher intensity of each type of coping strategies before therapy (respectively, for emotion-focused strategies: $M_{G1} = 2.94$ vs. $M_{G2} = 3.83$; $F = 37.69$; $p < .001$; for problem-focused strategies: $M_{G1} = 2.82$ vs. $M_{G2} = 3.96$; $F = 74.30$; $p < .001$; for meaning-focused strategies: $M_{G1} = 2.98$ vs. $M_{G2} = 4.33$; $F = 78.03$; $p < .001$; and for seeking social support: $M_{G1} = 2.54$ vs. $M_{G2} = 3.98$; $F = 60.04$; $p < .001$). The interaction between time and strategy values thus categorized turned out to be significant ($F = 3.83$; $p < .05$). Namely, in the group with a lower intensity of strategies in the pretest an increase in satisfaction with life occurred during therapy (from 13.28 to 17.41, $p = .02$), whereas no such change was observed in the group with a higher intensity of strategies (16.72 vs. 16.53, $p = .88$). Moreover, as can be seen, initial values of satisfaction with life were found to be higher in the group with higher initial intensity of coping, the difference reaching the level of statistical significance ($t = -1.84$, $df = 58$, $p < .05$). These results totally agree with those described earlier, obtained in latent curve analyses.

Finally, the smallest number of significant relations were found for self-efficacy. Only for problem-focused and meaning-focused strategies did higher intensity correlate with higher GSES before therapy. Still, neither this initial level nor

the possible strategy changes corresponded with changes in GSES. Nor did education, included in the model as a covariate, reach the level of statistical significance in relation with the initial level of self-efficacy and its subsequent changes.

DISCUSSION

The study was aimed at examining if, between admission to and the completion of residential alcohol addiction treatment, changes in psychological well-being, self-efficacy, or coping occur in its participants and how these possible changes are interrelated. It has been shown that answers to these questions depend on the level of analyses. The significant changes for the whole sample concerned only a decrease in depressive symptoms and an increase in problem-focused, meaning-focused, and seeking social support strategies. A decrease in depressive symptoms during treatment had already been reported in the literature (Mellibruda & Włodawiec, 1997; Wojnar, Slufarska, & Klimkiewicz, 2007). What testifies to the importance of this result is the fact that high BDI scores (both at the beginning and at the end of the treatment) are related to a higher frequency and intensity of drinking after the treatment (Gamble et al., 2010).

As regards coping, findings correspond to some extent with the study by Mroziak, Wójtowicz, and Woronowicz (1999), who demonstrated an increase in task-oriented and avoidant-social coping styles also during structural-strategic residential alcohol treatment. This issue deserves attention insofar as the change concerns styles – relatively constant dispositions to cope in a particular manner. The supposition that this takes a kind of transformation in the strategies themselves is therefore reasonably founded and reflected in the present study. Additionally, the observed increase in problem-focused and seeking social support strategies is understandable if we consider the specificity of structural-strategic treatment, during which patients are taught to cope with life's problems without resorting to drinking alcohol and to seek social contacts with non-drinkers, for instance in an Alcoholics Anonymous group (Mellibruda & Sobolewska-Mellibruda, 2006).

What is interesting is the lack of change in the mean levels of self-efficacy and satisfaction with life compared to the results of other empirical studies, although it must be stressed that those, too, remain inconclusive (cf. Chodkiewicz, 2001, 2012; Ginieri-Coccosis et al., 2007; Lahmek et al., 2009). This is probably due to high interindividual variance between participants in the initial

values of these constructs and their subsequent change, which is revealed by the significance of all variances around the intercept and slope means (cf. Greenbaum et al., 2005). On the one hand, this shows the external validity of the study, since such a situation is no surprise to clinicians; on the other, this explains why empirical results regarding therapy effectiveness remain varied. The mean values for the whole sample contain only partial information and may lead to misguided conclusions about no change at the individual level (Molenaar & Campbell, 2009).

Consequently, the next question was the question of what influences the individual change (Molenaar & Campbell, 2009). As has been observed, the values of initial variables consistently determine their final intensity, but, contrary to expectations, a higher level of resources (better psychological well-being and higher self-efficacy) does not promote their further growth. It cannot, therefore, be excluded that we are dealing here with regression toward the mean, where participants who scored higher in the first assessment score lower in the next one, and the other way around (Maraun, Gabriel, & Martin, 2011). Still, the decrease in the homogeneity of the emotion-focused coping subscale, together with the complex relationship between strategies and psychological well-being, as well as the relations between changes in different constructs, suggest that the entire process is far more complex.

Correlated change analysis shows that changes in coping strategies are related to changes in psychological well-being: an increase in each of the strategies corresponded with a decrease in depression, and a decrease in each except problem-focused coping corresponded with a decrease in satisfaction with life. The result obtained for depression is in keeping with expectations – though untypical, since studies on coping with stress much more often reveal a positive correlation between coping and negative emotional state (Coyne & Racioppo, 2000). Those studies, however, do not concern the issue of strategy change, least of all the change taking place during therapeutic intervention. The few existing intervention studies regarding coping as a target and depression as an outcome show their effectiveness (Heckman et al., 2011). Alcohol is sometimes used to regulate emotions, which is described by the motivation model of alcohol use (Cooper, 1994) and confirmed by empirical results (Grant, Stewart, & Mohr, 2009). In some cases, then, it initially plays the role of a more or less conscious way of coping (Park & Levenson, 2002). It can, therefore, be supposed that broadening the spectrum of coping strategies as well as an increase in their intensity in addicted individuals indicates the activation of coping with both external problems and one's own negative emotional states otherwise than by turning to drinking (cf.

Moser & Annis, 1996). This would explain the observed connection between these changes and the decrease in depressive symptoms (Holahan et al., 2001).

There is a corresponding relation between coping and satisfaction with life, an increase in the former being connected with an increase in the latter. It must be added, however, that the initial intensity of coping moderates the character of this change, limiting it to patients with low initial intensity of all the coping strategies. In a "low copers" group, then, the mechanisms that connect coping with the positive and negative aspects of well-being are probably similar and analogous to those described for depression. Less clear processes, requiring further investigation, concern individuals who begin the treatment with the converse initial array of the studied variables.

Surprising against this backdrop is the result for self-efficacy, a variable whose changes do not co-occur with changes in coping strategies. Still, the initial level of self-efficacy remains positively related to problem-focused and meaning-focused coping. This result is important because it is self-efficacy and its change that predicts the maintenance of abstinence after the completion of treatment (Adamson, Sellman, & Frampton, 2009; Hartzler et al., 2011; Moos & Moos, 2006). It cannot be excluded that change in well-being can be effected more quickly or more easily than change in self-beliefs concerning one's own coping ability. It is possible that such change appears only in the long-term perspective, following the experience of positive effects of particular coping behaviors in specific circumstances. This is shown by findings pointing to positive feedbacks that lead to growth in both of these areas (Schwarzer et al., 2005), but these have not been found here.

Summing up, during the six weeks between the beginning and at the end of participation in residential alcohol addiction therapy, the level of depressive symptoms decreased in the study group whereas the intensity of problem-focused, meaning-focused, and seeking social support strategies increased. As regards the other variables, the size and direction of change differed strongly between individuals.

This conclusion, however, must be considered with reference to the limitations of the study. The study is not an attempt to assess the effectiveness of alcohol addiction psychotherapy. As stressed in the introduction, its aim was to observe the changes in the selected variables, important to the proper functioning of alcohol-addicted people undergoing treatment, during the period between admission to and the completion of residential therapy as well as to examine the relations between these changes. With the scope thus narrowed down, the study is further limited by the sample size and the lack of a control group.

Also important is the fact that the studied psychological characteristics were not easily subject to perceptible changes over a short period of time. Undoubtedly, therefore, in order to obtain a more complete picture, it would be advisable to carry out a follow-up study, possibly with reference to variables more specific to people addicted to alcohol (cf. Annis & Graham, 1988; DiClemente et al., 1994). It must be admitted, however, that what makes a difference in the daily functioning of such people is not only how they cope with substance craving but also how they struggle with stressful situations (Howell et al., 2010), which is reflected in the stated objectives of treatment. Specific changes, then, should be seen as merely one of the stages on the way to recovery.

The results obtained should not be considered conclusive in terms of causal relationships. Also the degree of their generalization is limited, due to the specificity of the sample as well as to the methodology of the study. The findings should therefore be considered exclusively in the context of other empirical findings, in accordance with the cumulative character of psychological knowledge. Given these limitations and the small number of longitudinal studies on the issues in question, particularly in the Polish literature, the results show both the possibility of empirical detection of changes during alcohol addiction treatment as well as the legitimacy of approaching them not only in terms of group means but also in terms of variance around these means, which capture interindividual variability in the change process. Such an approach appears to have an important practical value.

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