

# Interrelation between Defensive Mechanisms and Coping Strategies in Psychiatry Trainees in Romania: A Multi-Centric Study

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## Research

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# Abstract

**Background** The challenges that a professional face when working in the field of psychiatry require the development of adequate defensive and coping styles. **Aims** To explore the coping strategies, the defense mechanisms and their relationship among psychiatry trainees in Romania.

**Materials and methods** A cross-sectional study was conducted to determine and to evaluate both defensive and coping styles of Romanian psychiatry trainees. DSQ-60 and COPE scales were applied to psychiatry trainees from five training centers in Romania. By applying structural equation modeling, we studied models that presumed the existence of relationships between coping strategies and defensive mechanisms.

**Results** The results of the study indicate that defense mechanisms and task-oriented coping style were the commonly used approach by trainees in psychiatry. In addition, our findings show significantly consistent correlations (ranging from 0.2 to 0.5) between adaptive defense mechanisms and coping styles focused on the problem, or on the emotion. Similarly, the avoidant coping strategies correlated with defense styles that are not adaptive (correlations between 0.3 and 0.5). Our model presented good fit indices,  $\chi^2(34) = 50.519$ ,  $p < 0.001$ ; GFI = 0.93; RMSE = 0.08. Moreover, the results indicated a weak association,  $r = 0.01$ ,  $p < 0.001$ , between the two types of adaptive processes.

**Conclusions** Our findings suggest that trainees in psychiatry present a profile based on two independent groups of adaptation processes, namely, adaptive defenses and problem-oriented coping scales, and non-adaptive defenses and avoidant coping scales.

# Introduction

Coping and defense mechanisms are a subject of debate as to what exactly do, they describe, as mental processes, and what is the relation between them<sup>1</sup>.

Traditionally, it is considered that coping mechanisms are based on cognition<sup>2</sup>, while defense mechanisms are described as unconscious processes<sup>3</sup>. Defense mechanisms are patterns of relatively involuntary responses to external or internal factors and they involve feelings, thoughts and behaviours<sup>4</sup>. Lazarus suggests that coping and defense mechanisms must be studied together, thus not limiting coping to deliberate and conscious processes<sup>5</sup>.

Coping mechanisms are conscious and purposeful processes which are not as inflexible as defense mechanisms<sup>6</sup>. Many studies show some relation between coping and defense mechanisms<sup>7,8</sup>.

New trends show that both mechanisms evaluate different facets of the same background processes<sup>1</sup>, as opposed to earlier statements that suggest totally different background processes<sup>3</sup>.

The vulnerability-stress psychopathology model outlines two underlying components<sup>9</sup> that may be extended to other dysfunctions<sup>10,11</sup> than the original proposed model<sup>12,13</sup>. The internal component is represented by vulnerability, all mechanisms and processes that arise and are non-adaptive, and the external component is stress which is based on life events<sup>14</sup>; the two are influenced by each other, and they create a threshold for disorders to arise<sup>15</sup>.

There are numerous studies reporting high levels of burnout in the medical profession<sup>16,17</sup>, along with high rates of depression and suicide among physicians and medical students<sup>18,19</sup>. The prevalence of depression and depressive symptoms among medical students is around 27.2% with a prevalence of suicide ideation at 11.1%<sup>20</sup>.

Psychiatry is a stressful medical field<sup>21</sup>, psychiatrists being prone to suicide and burnout<sup>22,23</sup>. Younger psychiatrists tend to be more stressed than older ones<sup>24</sup> and women more than men<sup>22,25</sup>.

A major, frequent stress factor is patient suicide, younger psychiatrists being more affected than their senior colleagues<sup>22,24</sup>.

Other sources of stress reported are negative attitudes of patients and careers, administrative and management shortcomings, overload and poor resources<sup>22,26,27</sup>.

Whilst emerging evidence shows that debriefing a traumatic event may not be of help for all patients<sup>28,29</sup>, in all circumstances<sup>30</sup>, this remains the standard procedure in many clinical settings<sup>29</sup>. Hearing patients' traumatic history can also cause stress among medical doctors<sup>31</sup>.

There is currently a debate in how this type of exposure influences coping or defense mechanisms. Some argue that it can either increase the risk for psychiatrists to develop mental health issues<sup>32,33,34</sup>, or it could facilitate the development of better coping and defense mechanisms in certain circumstances<sup>35</sup>. Factors that contribute to one or the other need more studies<sup>35</sup>.

A small study, similar to this one, was published<sup>36</sup> with results that suggest a similar pattern of defense and coping for this particular population.

The main focus on psychiatrists training is on patient care with no specific attention paid to psychiatrists coping skills or defense mechanisms. Whilst there is supervision, reflective practices and staff meetings that offer some support, there is no specific training in how to care for the actual psychiatrist. Some studies have shown that having a stable and satisfactory personal life is significantly important for the doctor's wellbeing<sup>35</sup>.

## Materials And Methods

### Study sample

Romanian psychiatry trainees from five different training centers and different regions in Romania (Bucharest, Cluj-Napoca, Timisoara, Tîrgu Mures and Sibiu) were invited to participate. The centers selected have the same curriculum in their psychiatric training program and accept medical trainees after a national exam. A total of 76 participants were recruited. The study was conducted between April 2016 and September 2017. The inclusion criteria were: being in a psychiatry training program in Romania, having Romanian nationality and agreement to complete the questionnaires in full. All participants were informed about the purpose of the study and the confidentiality of the collected data. No remuneration was offered.

## Measurements

Participants were asked to fill in two self-assessment questionnaires that evaluate their coping styles: COPE<sup>37</sup>, a scale with 60 questions which explores 15 coping mechanisms and defense mechanisms and the Defensive Style Questionnaire, DSQ-60<sup>38</sup>, a self-report measure with 60 questions which explores 30 defense mechanisms. The two self-assessment questionnaires were translated, validated and adapted for the Romanian population<sup>39,40</sup>.

## Assessing coping strategies

The COPE scale is comprised of 60 items graded on a Likert-type scale from 1 to 4, where 1 indicates “I usually don’t do this” and 4 indicates “I often do this”. The four coping strategies included<sup>37</sup> are listed below:

emotion-focused coping: positive interpretation and growth, restraint, and acceptance

problem-focused coping: planning, active approach, and deletion of concurrent activities

social support coping: social instrumental support, use of social emotional support, and expression of feelings

avoidant coping: denial and mental and behavioral deactivation.

The highest score recorded in these four coping styles was considered in this study to be the dominant and most representative for the patients investigated.

## Assessing defensive mechanisms

The Defense Style Questionnaire-60 (DSQ-60) is a self-report measure to assess the 30 defense mechanisms included in the DSM IV<sup>41</sup>. The questionnaire has 60 items which are evaluated using a 9-point Likert-type scale (1 – not at all applicable to me; 9 – completely applicable to me). The 7 levels of defense mechanisms<sup>40, 42</sup> are the following:

Action: help rejecting, complaining, acting-out and passive aggression.

Major image distortion: projective identification, splitting of other and splitting of self.

Refusal to take responsibility: fantasy, rationalization, projection and denial.

Minor distortion of the image: devaluation of other, devaluation of self, self-idealization and the idealization of the other, omnipotence.

Neurotic: displacement, reaction formation, dissociation, repression.

Obsessive: isolation of affect, intellectualization and undoing.

Adaptive: sublimation, suppression, self-assertion, self-observation, humor, anticipation, altruism, affiliation.

## Statistical analysis

Data were presented as median (interquartile range) for continuous variables with non-Gaussian distribution, or absolute frequency (percentage) for categorical variables. Continuous variable distributions were tested for normality using the Kolmogorov–Smirnov’s test and for equality of variances by using Levene’s test.

For assessing the significance of the differences between groups, the Student’s t-test (means, Gaussian populations), Mann–Whitney U test (medians, non-Gaussian populations), and Pearson chi-square or Fisher’s exact test (proportions) were used. Using structural equation modeling, we studied models that assumed the existence of relationships between coping and defensive mechanisms.

We applied structural equation modeling (SEM) to overcome the problem of multiple hypotheses testing. The SEM approach is more appropriate when analyzing non-causal relationships, such as the relationships between coping and defenses. The SEM approach does not assume that one variable is a predictor for the other variables. In addition, the SEM has the convenience of allowing for comparisons between complex models, such as models that assumed the existence of relationships between coping and defenses, and models that assumed independence between these constructs. More exactly, we applied the SEM approach with the maximum likelihood estimation method. Moreover, we reported fit indices that are least influenced by estimation method (the Goodness-of-Fit Index–GFI), or by sample size (the Root-Mean-Square Error of Approximation–RMSEA). For comparison purposes, we also reported the chi-square index and the Comparative Fit Index (CFI). Acceptable fit is indicated by values smaller than 0.08 for RMSEA and values higher than 0.90 for CFI. We considered that two structural models were different when the  $\Delta X^2$  was statistically significant, and the difference between the CFI of the two models was larger than 0.01.

Data were analyzed by using the SPSS v.17 software (SPSS Inc., Chicago, IL, USA) and the R software packages (v.3.3) for statistical computing. A P-value < 0.05 was considered as the threshold for statistical significance. A confidence level of 0.95 was considered for estimating intervals.

## Results

### Sociodemographic characteristics

The socio-demographic characteristics of the sample are presented in Table 1. The number of participants who agreed to participate was 76. Participants were recruited from different training centers and regions in Romania: Bucharest, Cluj-Napoca, Timisoara, Tîrgu Mures and Sibiu. The average age for

the lot was 27.5 (26–30), there were 63 females – 82.9%, with an average period in the work field of 36 months (7–48).

Table 1  
Socio-demographic characteristics of the participants

<b>Number of participants</b>	<b>76</b>
Age [years] <sup>(a)</sup>	27.5 (26–30)
Gender (female) <sup>(b)</sup>	63 (82.9%)
Citizenship <sup>(b)</sup>	
Romanian	75 (98.7%)
Romanian-Hungarian	1(1.3%)
Education <sup>(b)</sup>	
Master's degree	3 (3.9%)
PhD	1 (1.3%)
Civil status <sup>(b)</sup>	
Married	20 (26.3%)
Unmarried	48 (63.1%)
Single	4 (5.3%)
Cohabiting partnership	4 (5.3%)
Number of children <sup>(a)</sup>	
None	63 (82.9%)
One	11 (14.5%)
Two	2 (2.6%)
Working period [months] <sup>(a)</sup>	36 (7–48)
Religion <sup>(b)</sup>	
Orthodox	53 (69.7%)
Catholic	4 (5.3%)
<sup>(a)</sup> Continuous variables (with non-Gaussian distribution) are indicated by their median (interquartile range-IQR).	
<sup>(b)</sup> Categorical variables are presented by absolute frequency and percentage in the sample.	

<b>Number of participants</b>	<b>76</b>
Greco-catholic	1 (1.3%)
Reformed	3 (3.9%)
Agnostic	2 (2.6%)
Independent	1 (1.3%)
Atheist	3 (3.9%)
Undeclared	9 (11.8%)
(a)Continuous variables (with non-Gaussian distribution) are indicated by their median (interquartile range-IQR).	
(b)Categorical variables are presented by absolute frequency and percentage in the sample.	

More than a half of the participants were unmarried (63%) and without children (82.9%). In addition, we observed that more than a half of the participants had Christian orthodox religion (69.7%).

Table 2 presents the description of all the coping strategies with problem-focused and emotion-based coping styles having a median of 36 (33–39.5), 35.5 (31–38), respectively.

Table 2  
Description of coping strategies.

<b>Coping styles</b>	<b>Median</b>	<b>25%</b>	<b>75%</b>	<b>Minimum</b>	<b>Maximum</b>
Problem-focused	36	33	39.5	22	48
Emotion-focused	35.5	31	38	35	74
Social support	32	28.5	37.5	17	46
Avoidant	22	19	26	18	44

The dominant coping style was ‘problem-focused’ for almost half of the participants (46.1%). The emotion-focused coping style was the dominant coping style for 26.3% of the participants, while for 25% of the participants; the dominant coping style was social support. A percentage of 2.6of the sample use avoidant coping as their dominant coping style.

Table 3 includes the description of the defensive mechanisms for both adaptive and non-adaptive strategies. Superior adaptation has a median of 94.5 (86–104), while mental inhibition and minor distortion presented a median of 55.5 (43.25–63.75) and 21.5 (16–29), respectively.

Table 3  
Description of defensive mechanisms

<b>Defensive mechanism</b>	<b>Median</b>	<b>25%</b>	<b>75%</b>	<b>Minimum</b>	<b>Maximum</b>
Superior adaptation	94.5	86	104	69	129
Mental inhibition	55.5	43.25	63.75	28	88
Minor distortion	21.5	16	29	8	43
Disavowal	23	19.25	29	12	42
Major distortion	20.5	13	28	8	51
Action	27.5	22	35.75	10	51

The results presented in Table 4 show significantly consistent correlations (ranging from 0.2 to 0.5) between adaptive defense mechanisms and coping focused on the problem, on the emotion or on seeking social support. We observed a positive and very significant correlation between superior adaptation and problem-focused coping style (Spearman's  $r = 0.469$ ,  $p < 0.01$ ). In addition, we observed a positive very significant correlation between superior adaptation and emotion-focused coping (Spearman's  $r = 0.365$ ,  $p < 0.01$ ). The major distortion was not significantly correlated with the social support coping style (Spearman's  $r = 0.225$ ,  $p = 0.02$ ).

The superior adaptation negatively correlated with avoidant coping strategy (Spearman's  $r = -0.049$ ,  $p = 0.03$ ). The avoidant coping strategies correlated with defense styles that are not adaptive (correlations between 0.3 and 0.5). More exactly, we observed a positive very significant correlation between major distortion and avoidant coping style (Spearman's  $r = 0.464$ ,  $p < 0.001$ ). Another positive significant correlation (Spearman's  $r = 0.267$ ,  $p = 0.003$ ) was found between major distortion and social support coping mechanisms. On the contrary, major distortion was not significantly correlated with problem-focused coping (Spearman's  $r = -0.103$ ,  $p = 0.002$ ), and major distortion negatively correlated with emotion-focused coping strategy (Spearman's  $r = -0.067$ ,  $p = 0.01$ ).

Table 4  
Correlations between defensive mechanisms and coping strategies

Parameters	Problem-focused	Emotion-focused	Social support	Avoidant
Superior adaptation	0.469**	0.365**	0.223	-0.049
Mental inhibition	0.073	0.146	0.144	0.358**
Minor distortion	0.141	0.032	0.237*	0.276*
Disavowal	0.023	0.006	0.263*	0.180
Major distortion	-0.103	-0.067	0.267*	0.464**
Action	-0.109	-0.038	0.254*	0.361**
*significant correlation at 0.05 level				
** significant correlation at 0.01 level				

We grouped coping and defense mechanisms into two types of adaptive processes: one type of adaptive processes includes mature (or well adaptive) defenses and all forms of active coping (focused on the problem, focused on emotion or focused on seeking social support); the other type includes non-adaptive defense mechanisms and avoidant coping (Fig. 1).

Our model presented good fit indices,  $X^2(34) = 50.519$ ,  $p < 0.001$ ; GFI = 0.93; RMSE = 0.08. Moreover, the results indicated a very weak association,  $r = 0.01$ ,  $p < 0.001$ , between the two types of adaptive processes. Correlation values close to zero were found between avoidant coping and adaptive defense mechanisms, and between non-avoidant coping (problem-focused, emotion-focused) and non-adaptive defenses.

## Discussion

The aim of our research was to investigate the relationships between coping strategies and defense mechanisms among psychiatry trainees.

The gender shift in the medical profession<sup>43,44</sup> may explain why the majority of our participants were women (82.9%) in spite of the random application process, selecting participants on the basis of acceptance to take part of the study.

Factors like female gender<sup>45,46</sup> and unmarried (63%in the current lot) status<sup>47</sup> are considered by many studies as factors of vulnerability for mental health while having no children (82.9% in the current study) protects the subjects from the stress of parenthood<sup>47</sup>. This can also suggest a life trajectory in the medical profession that involves many years dedicated to professional development and less time dedicated to personal life<sup>48</sup>.

Work experience in this lot is between 7–48 months, allowing the supposition that the job involvement in changing the structure of the strategies of coping and defense used overall is limited, as it is limited in targeted strategies that promote change at this level<sup>49, 50, 51</sup>. It is likely that the very nature of the type of work undertaken by the psychiatric profession can be in itself a cause of the vulnerability to stress<sup>22, 52, 53</sup>.

Psychiatrists tend to use better defenses strategies in their young age but more likely to feel more stressed than their elder colleagues<sup>53</sup>. This may explain the superior styles of coping and defense for this group. This is not applicable to the general population that seems to have more mature strategies with age<sup>54</sup>.

Stressful events can induce a regression to inferior defensive styles and coping<sup>55</sup>. The exposure to elements of this profession can, therefore, contribute to the dynamic of strategies used for coping and defense in a negative way without strategic interventions<sup>56, 57</sup>.

Problem-focused coping style was associated in several studies with an emotional well-being in different organisations<sup>58, 59, 60, 61</sup> while emotion-based coping may be a factor in the emotional strain of a person<sup>60, 61</sup>. Coping efficacy depends on many factors both personal and organizational and not only on the type of the coping strategy used<sup>62, 63, 64</sup>.

The lot used mature defense mechanisms which are more common within the age group over 40 years old and less common in the young age<sup>65</sup>.

Results suggest that coping and defense mechanisms could be grouped into two types of adaptive processes. Starting from these observations, we tested a model that assumed the existence of two types of adaptive strategies, using the composite score for each of Carver's four types of coping<sup>37</sup> and the composite score for each of Perry's seven defense levels<sup>42</sup>.

We can suggest that, with the correlations found, adaptive defense mechanisms imply coping focused on the problem, on emotion or on seeking social support with a stronger probability of problem-focused coping style, while excluding avoidant coping strategy. Major distortion mechanism has a good probability of implying avoidant coping style or social support coping mechanisms, but not emotion-focused coping strategy. The idea that coping and defense mechanisms are facets of common processes is relatively new and this paper sustains the grouping of the adaptive processes like Maricutoiu L. P. & Crasovan D. I. proposes<sup>1</sup>. There are similarities between the two processes and a clear distinction supported by empirical evidence was not reached<sup>1</sup>, although theoretical differences were argued<sup>6, 66</sup>.

## **Strengths And Limitations Of The Current Study**

This study is one of the few conducted on this specific population. The number of subjects and gender diversity is a limitation. The sample, although randomly selected, was formed predominantly by

unmarried women without children. The age and experience were consistent within the sample. The grouping in adaptive processes is a new emerging idea that needs further studies.

## **Conclusions**

The problem-focused, emotion-based and social support coping styles were the best represented coping styles. Avoidant coping was the least used coping style. Superior adaptation was the most well-represented defense strategy followed by mental inhibition. The least used defense strategy was major distortion.

Our results support the two hypothesized relationships that anticipated associations between adaptive defenses and problem-oriented coping, and associations between non-adaptive defenses and avoidant coping.

## **Abbreviations**

DSQ-60 - Defense Style Questionnaire-60

COPE - Coping Inventory

SEM - Structural Equation Modeling

GFI - Goodness-of-Fit Index

RMSE - Root-Mean-Square Error of Approximation

IQR - Interquartile Range

SPSS - Statistical Package for the Social Sciences software

## **Declarations**

### **Ethics approval and consent to participate**

All data were anonymized before analysis. No sensitive participant information is included in the article. All participants signed written informed consents before inclusion in the study. Ethics committee decided approval was not necessary in these circumstances.

**Consent for publication** – All authors consent publication for the submitted draft.

### **Availability of data and material**

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

### **Competing interests**

All authors declare that they have no competing interests.

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### **Authors' contributions**

ALP has made contributions to the conception, design of the study and the acquisition, analysis and interpretation of data. FM made contributions to the design of the study and the analysis and interpretation of data. NA has made contributions to the conception, design of the study and interpretation of data. HM has made contributions to the conception of the study and the acquisition of data. LD has made contributions to design of the study and analysis of data. CM has contributed at drafting and substantively revised the manuscript. LL has made contributions to the acquisition and interpretation of data. IA has made contributions to the acquisition. PI has made contributions to the design of the study and the interpretation of data. BC has made contributions to the conception, design of the study and the interpretation of data. All authors read, revised and approved the final manuscript.

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## Figures

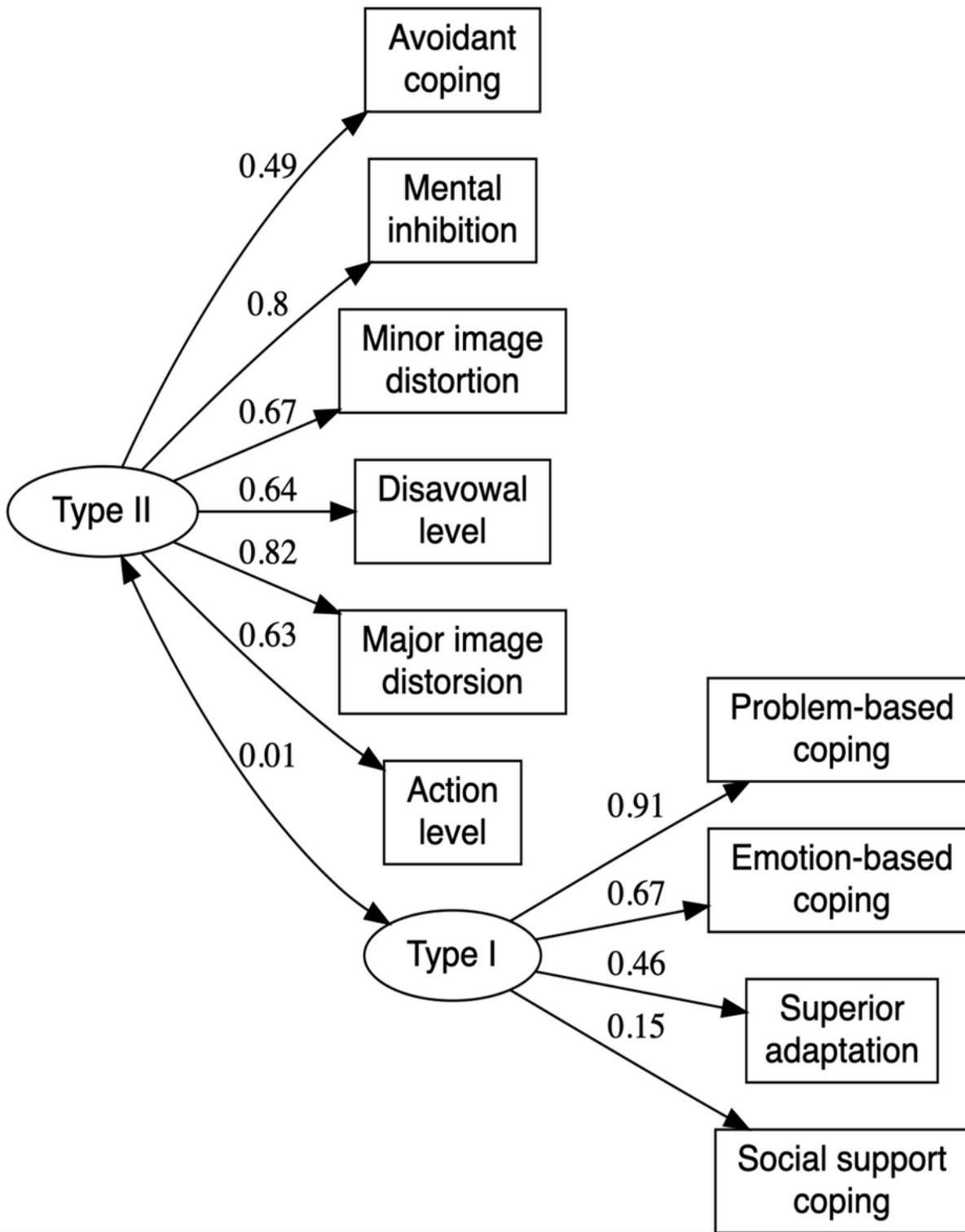


Figure 1

Graphical representation of the model showing the two types of adaptation process.