The Perceptions of Physicians Regarding the Medical Cannabis Reform and the Treatment of Medical Cannabis in Israel

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Abstract

Background: The medical world is mired in conflict between the growing demand for medical cannabis treatment by patients, and the lack of sufficient research evidence on the effectiveness and safety of the use of medical cannabis. The main goal of the study was to examine what are the physicians' perceptions regarding the medical cannabis reform in Israel and the treatment of medical cannabis?

Methods: 105 physicians from hospitals fill out perception questionnaires characterized the physicians' perceptions regarding the cannabis reform and the treatment of medical cannabis.

Results: The analysis of the questionnaires revealed that the physicians believe that the cannabis reform contributes to the regulation of the treatment of medical cannabis and that there is indeed an openness in the medical community to the treatment of medical cannabis. Nonetheless, physicians do not perceive medical cannabis treatment as better than other treatments. The analysis of the perceptions of the physicians in relation to their background characteristics revealed that male physicians believe that the contribution of the cannabis reform in Israel is significant and that there is greater openness regarding the treatment of medical cannabis among the medical community compared to the perceptions of female physicians. Young physicians are more open to treatment using medical cannabis compared to veteran physicians. Physicians who work in the field of oncology and/or when their family member or close friend needs medical cannabis treatment, are more supportive of medical cannabis treatment.

Conclusions: In general, the more the physician believe that there is openness among his professional community to the treatment of medical cannabis, the more open he is to treatment using medical cannabis.

Keywords: Medical Cannabis, Cannabis Reform

1. Background

The transition of cannabis from an illegal drug to a medicine is an ongoing process in the world in general and in Israel in particular. The IMCA (Medical Cannabis Unit) chose the biomedical approach regarding cannabis, which perceives it as a biological substance that should enter medical use, even though there is uncertainty regarding varieties, doses, and forms of administration. This is a process called the medicalization of cannabis, that is, turning it from an illicit drug into a medicine with therapeutic indications. Unlike IMCA, the world of medicine in Israel is in controversy [14].

An early study showed that physicians in Israel partially accept the treatment of medical cannabis, but a later study revealed the conflict they are subject to in the medical relationship with this treatment [14,15]. The world of medicine in Israel is in a conflict which is rooted in the contradiction between the growing demand for medical cannabis treatment by patients, on the one hand, and the lack of sufficient research evidence on the effectiveness and safety of the use of medical cannabis, on the other hand. Some studies indicate that medical cannabis has a mild pain-relieving effect that is neurological in origin (in the nervous system), but regarding chronic pain the studies are inconclusive. On the other hand, the risks of harm following the use of cannabis are certainly significant [5,7].

For these reasons the need arose for this study which examined what

are the perceptions of physicians oriented to the field of medical cannabis regarding the medical cannabis reform and the treatment of medical cannabis? And what are the background characteristics of the physicians who have the different perceptions regarding the medical cannabis reform and the treatment of medical cannabis?

2. Methods
The perception questionnaires regarding the cannabis were sent to 103 physicians who have a certification known as "administrator" and who have the authority to approve recommendations for the use of medical cannabis in Israel, and 40 of them responded.

In addition to this, the perception questionnaires were sent to 170 physicians who do not have "administrator certification" and who have various specialties that are common in the indications for the administration of medical cannabis in Israel and 65 of them responded (a total of 105 participants)

These specialties included: oncology, neurology, psychiatry, anti-inflammatory treatment, pain treatment and treatment of terminal conditions. The physicians were selected from the list of physicians with "manager" certification who are allowed to approve medical cannabis and from the list of specialties that combine treatments with medical cannabis.

The perceptions questionnaire consisted of 17 statements in which the person filling out the questionnaire should indicate his degree of agreement with each statement on a Likert scale of 1-4 (strongly disagree-strongly agree).

The 17 statements were written in relation to the medical cannabis reform in Israel according to three main categories: perceptions regarding the principles of the reform, perceptions regarding the consequences for patients following the reform and perceptions regarding the treatment of medical cannabis. In this way, it was possible to classify the perceptions of each questionnaire participant in each category in relation to the cannabis reform and the treatment of medical cannabis.

The quantitative analysis procedure was carried out in two stages. In the first stage, descriptive statistics tools were used to characterize the sample and define the research variables. Later, exploratory factor analysis (EFA) was used to characterize the dimensions of the physicians' perceptions regarding the cannabis reform and medical cannabis treatment. In addition, the reliability of the variables was tested using Cronbach's α index. The recommended analysis approach for identifying the different factors for items that are not normally distributed and factors that have a correlation between them is Principal-Axis Factoring (PAF) together with the rotation of the solution according to direct oblique rotation [8,9,11]. All analyzes were performed using SPSS 27.0 software.

The statistical analysis brought up three variables: the first was the physicians' perceptions regarding the contribution of the medical cannabis reform to improving and regulating the use of medical cannabis systemically. The reliability of the variable was $\alpha = 0.827$

and it indicates a high internal consistency of the statements. The second variable was the extent to which the physicians believe that medical cannabis treatment is better than other treatments, despite the negative consequences that may be associated with medical cannabis treatment. The reliability of the variable was $\alpha = 0.784$ and it indicates a high internal consistency of the statements. The third variable was the perception of the physicians regarding the degree of openness among the medical community to treatment using medical cannabis. The reliability of the variable was $\alpha = 0.625$ and it indicates a good internal consistency of the statements.

In the second stage, the research hypotheses were tested using statistical tools. Hypotheses regarding the existence of differences were tested using tests to compare averages (such as t-tests and one-way ANOVA tests) and hypotheses regarding the existence of relationships between variables were performed using correlation tests. According to the results of these tests, more advanced tools of linear regression were used to examine the mutual effect of the background characteristics on the physicians' perceptions.

To examine the nature of the relationships between the physicians' perceptions and thereby the effect of the physicians' background characteristics on these relationships, the different directions of influence were examined using a Structural Equation Model (SEM). The directions of influence can be described and measured to assess the extent to which the theoretical model fits the data [9]. The estimation results of the MaximumLikelihood (ML) model were mostly examined according to three groups of Goodness of fit measures: Absolute fit (χ^2, SRMT, RMSEA, PClose), Incremental fit (CFI) and Parsimonious fit (χ^2 / df) [9].

3. Results
105 physicians responded to the perceptions questionnaire, 55.2% of them were men and 44.8% were women. The seniority of the physicians ranged from one to 48 years with an average professional seniority of 19.3 years. Regarding the areas of expertise: 21.9% of the physicians reported that they were family physicians, 20% of them treated pain, 8.6% of them were neurologists, the same rate were psychiatrists, 6.7% of them oncologists, the same rate engaged in anti-inflammatory treatment and the rest were engaged in other fields. Regarding the degree of involvement in the medical cannabis reform: 35.2% of the physicians stated that they approve the use of medical cannabis ('manager' certification) and a similar proportion (32.4%) reported that they were involved in the decision-making process or in the steering team of the medical cannabis reform . Regarding the degree of personal involvement in the treatment of medical cannabis: 41.9% of the physicians indicated that one or more of their family members needed medical cannabis treatment and 48.6% indicated that they had close friends who needed such treatment.

3.1. Physicians' Perceptions in Relation to their Background Characteristics
Table 1 presents the physicians' perceptions in relation to their seniority.

Perception	Seniority
Perceptions Regarding the Contribution of the Medical Cannabis Reform	**0.053**
The Perception of Openness among the Medical Community to the Treatment of Medical Cannabis	**-0.072**
Support for Medical Cannabis Treatment	**-0.189***

*p<.10

Table 1: The Physicians' Perceptions in Relation to their Seniority

The analysis of the physicians' perceptions in relation to their seniority (Table 1) indicates the existence of a significant negative correlation (r=-0.189, p<.10) between the physicians' seniority and their perception regarding the priority of medical cannabis treatment over other treatments.

Table 2 exhibit the Physicians' perceptions in relation to the physicians' field of specialization.

Field of Specialization	Support for Medical Cannabis Treatment			The Perception of Openness Among the Medical Community to the Treatment of Medical Cannabis			Perceptions Regarding the Contribution of the Medical Cannabis Reform			
	t	SD	M	t	SD	M	t	SD	M	
Oncology	1.366	0.6	2.6	0.172	0.6	2.2	0.536	0.6	2.5	No
		0.5	2.9		0.7	2.1		0.8	2.3	Yes
Neurology	0.376	0.6	2.6	0.074	0.6	2.2	1.645	0.6	2.4	No
		0.4	2.7		0.6	2.2		0.4	2.8	Yes
Psychiatry	0.815	0.5	2.6	2.126*	0.6	2.2	1.106	0.6	2.5	No
		0.6	2.7		0.5	1.8		0.5	2.2	Yes
Anti-inflammatory Treatment	1.262	0.5	2.6	2.852**	0.6	2.2	0.427	0.6	2.5	No
		0.6	2.8		0.6	1.6		0.5	2.4	Yes
Pain Treatment	0.319	0.6	2.6	2.392*	0.6	2.3	0.186	0.6	2.5	No
		0.5	2.6		0.7	1.9		0.5	2.4	Yes
Family	3.578**	0.5	2.7	1.236	0.6	1.2	2.077*	0.6	2.5	No
		0.6	2.2		0.4	2.0		0.5	2.2	Yes

** p<.10, *p<.05, ^p<.10

Table 2: Physicians' Perceptions in Relation to the Physicians' Field of Specialization

The analysis of physicians' perceptions regarding the openness of the medical community to the treatment of medical cannabis (Table 2) are lower among psychiatrists $t(103) = 2.126$, $p < 0.5$, lower among physicians dealing with anti-inflammatory treatment $t(103) = 2.852$, $p < 0.1$ and lower among physicians dealing with pain $t(103) = 2.392$, $p < 0.5$ than among physicians dealing with other fields.

In addition, family physicians' perceptions regarding the contribution of the medical cannabis reform are lower than among physicians dealing with other fields $t(103) = 2.077$, $p < 0.5$ and so is their perception regarding treatment using medical cannabis compared to other treatments $t(103) = 3.578$, $p < 0.1$.

Table 3 present the physicians' perceptions regarding the degree of involvement in the medical cannabis reform and in the treatment of medical cannabis.

Involvement in the Reform and/or in the Treatment	Support for Medical Cannabis Treatment			The Perception of Openness among the Medical Community to the Treatment of Medical Cannabis			Perceptions Regarding the Contribution of the medical cannabis Reform			
	T	SD	M	t	SD	M	t	SD	M	
Are you an administrator who approves the use of cannabis?	1.629	0.5	2.5	2.127*	0.6	2.3	0.172	0.6	2.4	No
		0.6	2.7		0.6	2.0		0.6	2.5	Yes
Were you involved in decision-making or in the steering team of the cannabis reform in Israel?	1.122	0.6	2.5	0.052	0.6	2.2	0.584	0.6	2.4	No
		0.5	2.7		0.6	2.2		0.6	2.5	Yes
Has anyone in your family needed or needs cannabis treatment?	2.365*	0.5	2.5	0.665	0.6	2.1	1.035	0.6	2.5	No
		0.6	2.7		0.6	2.2		0.6	2.4	Yes
Are there close friends who needed or need cannabis treatment?	1.813^	0.5	2.5	0.718	0.5	2.2	0.720	0.6	2.5	No
		0.6	2.7		0.6	2.1		0.6	2.4	Yes

** p<.10, *p<.05, ^p<.10

Table 3: The Physicians' Perceptions Regarding the Degree of Involvement in the Medical Cannabis Reform and in the Treatment of Medical Cannabis

The analysis of physicians' perceptions (table 3) revealed that physicians who approve the use of medical cannabis (with 'administrator' certification) believe that there is a lower openness among the medical community to the treatment of medical cannabis than physicians who don't approve the use of medical cannabis $t(103) = 2.127$, $p < 0.5$.

In addition to this, personal exposure of the physicians to the issue of medical cannabis treatment affects their support or changes their perception regarding such treatment. Support for medical cannabis treatment over other treatments was higher among physicians whose family members needed medical cannabis treatment $t(103) = 2.365$, $p < 0.5$, and higher among physicians who had close friends who needed medical cannabis treatment $t(103) = 2.813$, $p < 0.10$.

3.2. Structural Equation Analysis (SEM) to Analyze the Relationships between Physicians' Perceptions

Examination of the relationships between the physicians' perceptions and thereby the effect of the physicians' background characteristics on these relationships, the different directions of influence were examined using a Structural Equation Model (SEM). The directions of influence can be described and measured to assess the extent to which the theoretical model fits the data [2]. The estimation results of the Maximum-Likelihood (ML) model are usually examined according to three groups of goodness of fit measures: Absolute fit (χ^2, SRMT, RMSEA, PClose), Incremental fit (CFI) and Parsimonious fit (χ^2/df) [4]. The results of the analysis of the model are shown in Figure 1. The results indicate a good fit of the model with the data ($\chi^2 = 13.05$, df = 15, χ^2/df ratio =0.870, p>.05). The goodness of fit indices obtained (CFI=1.00, RMRS=0.04, and RSMEA<0.01), which indicate that the model has an excellent fit to the data.

The next step in the SEM analysis concerns the examination of the relationships between the physicians' perceptions. These relationships are illustrated in Figure 1, which presents the model of physicians' perceptions in relation to their background characteristics.

(The arrows in the figure indicate the standardized effect coefficients (β) and the variance explained by them. (R^2)
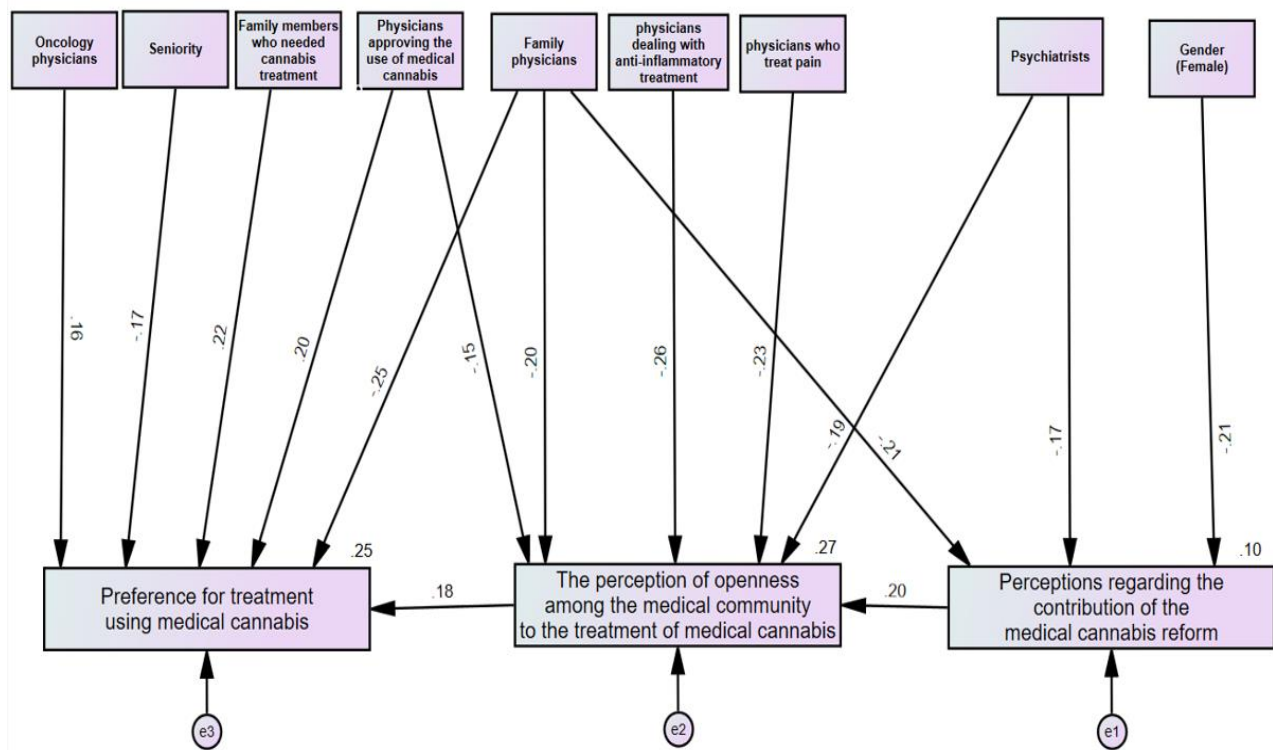
Figure 1: The Model of Physicians' Perceptions in Relation to their Background Characteristics

It is clear from the results of the model that the physicians' preference for medical cannabis treatment is lower among psychiatrists (β = -0.04), among women (β = -0.01), among physicians dealing with pain treatment (β = -0.04) and among physicians dealing with anti-inflammatory treatment (β = -0.05). Also, the results of the analysis show that the physicians' preference for medical cannabis treatment is positively influenced by their perceptions regarding the contribution of the medical cannabis reform (β = 0.04).

4. Discussion
The quantitative analysis of the findings showed that there is a clear positive correlation between the physicians' perceptions regarding the contribution of the medical cannabis reform in Israel to improving and regulating the use of medical cannabis and between their perception regarding the degree of openness among the medical community to the treatment of medical cannabis.

The physicians' perceptions regarding the contribution of the medical cannabis reform and regarding the medical community's perception of medical cannabis treatment are not directly related to their professional perception and their preference for medical cannabis treatment. These findings correspond to the physician conflict that emerged prominently from the interviews and is described in the literature [14,15]. The physicians believe that the cannabis reform in Israel contributes to regulating the treatment of medical cannabis and that there is indeed an openness in the medical community to the treatment of medical cannabis, but they don't perceive medical cannabis treatment as better than other treatments. There is a gap between the perceptions of the patients regarding the effectiveness of the treatment, the side-

effects and the risk of medical cannabis versus the perceptions of the physicians on these issues. The physicians held the least positive views regarding medical cannabis treatment compared to the patients who held the most positive views towards medical cannabis [15].

4.1. Discussion of Physicians' Perceptions in Relation to the Physicians' Background Characteristics
The analysis of the physicians' perceptions regarding the seniority of the physicians indicates the existence of a significant negative correlation between the seniority of the physicians and their perception regarding the priority of medical cannabis treatment over other treatments. This characteristic is a component of the physicians' conflict regarding the treatment of medical cannabis. Veteran physicians who have been in the system for many years and are well acquainted with conventional treatments find it difficult to accept medical cannabis treatment as equal to other treatments or better than some of them compared to young physicians.

The analysis of the physicians' perceptions in relation to their field of specialization shows that the physicians' perceptions regarding the openness of the medical community to the treatment of medical cannabis are lower among psychiatrists, physicians who deal with anti-inflammatory treatment and physicians who treat pain than among physicians who deal with other fields. Psychiatrists, physicians who deal with anti-inflammatory treatment and pain management believe that there is a lower openness among the medical community in Israel to the treatment of medical cannabis compared to the perceptions of physicians who deal with other fields. It is possible that this difference is due to the fact in these

areas the treatment of medical cannabis is more complex and thus problematic or raises more antagonism. For example, in the field of psychiatry, for some psychiatric conditions or diseases, medical cannabis treatment is not approved in terms of indications and sometimes can even worsen the situation, such as worsening anxiety, psychosis, and an increased risk of developing mental disorders, among them schizophrenia and bipolar disorder [1,3,10].

In addition, it was found that family physicians believe that the contribution of the cannabis reform in Israel is less and less prefer to treat with medical cannabis compared to physicians dealing in other fields. The conservative approach has an additional layer in the complexity of the physicians' conflict regarding the treatment of medical cannabis [14,15].

The analysis of the physicians' perceptions regarding the extent of their involvement in the medical cannabis reform and in the treatment of medical cannabis shows that physicians who approve the use of medical cannabis (with 'administrator' certification) believe that there is less openness among the medical community to the treatment of medical cannabis than physicians who do not approve the use of medical cannabis. Even this finding links to the previous ones and strengthens the explanation for the physicians' conflict regarding the treatment of medical cannabis. The more a physician is involved in the cannabis reform and in the treatment of medical cannabis, the more he is exposed to these issues, and therefore it is likely that he will be more aware of the conflict between physicians and the lack of openness in the treatment using medical cannabis in the medical community compared to physicians who are less involved in these issues.

In addition to this, personal exposure of the physicians to the issue of medical cannabis treatment affects their support or changes their perception regarding such treatment. Support for treatment using medical cannabis over other treatments was higher among physicians who had one of their family members or a close friend need treatment with medical cannabis. When their family member or close friend needed or needs medical cannabis treatment, they are more supportive of medical cannabis treatment. This finding is interesting due to the physicians' diagnosis between family members or close friends and the rest of the population. Further research is required to determine the reason for this finding.

4.2. Discussion of the Model: Physicians' Perceptions in Relation to their Background Characteristics

Physicians who treat pain, physicians who deal with anti-inflammatory treatment, family physicians and physicians who approve the use of medical cannabis ('administrator' certification) believe that there is a lower openness among the medical community to the treatment of medical cannabis compared to physicians who deal with other fields and/or who don't approve the use of medical cannabis. This finding corresponds to the previous findings so that the field of specialization of the physicians and/or their certification to approve medical cannabis influence their perception of the degree of openness of the medical community to the treatment of medical cannabis and thus emphasize the

complexity of the physicians' conflict which is influenced by different background characteristics.

Three background characteristics influence the extent to which physicians prefer to treat with medical cannabis. physicians working in the field of oncology and physicians whose family members needed treatment with medical cannabis prefer to treat with medical cannabis compared to other treatments. physicians working in the field of oncology are more exposed to medical cannabis patients and are therefore more open to this therapeutic approach, especially in the aspect of terminal patients whose suffering can be alleviated by the treatment. Indeed, about a third of the licenses for the use of medical cannabis are given to oncology patients [13].

In addition, the degree of preference of physicians to treat with medical cannabis is positively influenced by their perception regarding the degree of openness among the medical community to treatment with cannabis. That is, the more the physicians believe that there is an openness among their professional community to treat medical cannabis, the more open they themselves are to treating with medical cannabis. It is not surprising that the medical community to which the physician belongs influences and shapes his personal perception.

Physicians who approve the use of medical cannabis have a higher degree of preference to treat with medical cannabis, but since they believe that the medical community is less open to treating medical cannabis, their preference to treat with medical cannabis moderates. This finding corresponds to the previous one according to which the medical community to which the physician belongs influences and shapes his personal perception. Other studies show that physicians experienced in prescribing medical cannabis are more convinced of its positive effects and less worried about its negative effects compared to less experienced physicians or those who deal with addiction treatment. In general, there is a lack of knowledge among most of medical population regarding the beneficial and negative effects of medical cannabis [12]. Therefore, it is reasonable to assume the more physicians there are that approve medical cannabis in Israel, the higher their preference for treating medical cannabis because they will be more experienced in the subject and accordingly their frequency will increase in the medical community that shapes their perception.

The physicians' preference for treatment using medical cannabis over other means of treatment is lower among family physicians, both directly and through the indirect effect of this characteristic on their perception of the contribution of the medical cannabis reform and the degree of openness among the medical community to treatment using medical cannabis. This finding was previously explained in terms of their exposure to the patients' stress on the subject [14,15].

Despite the indirect effect, it is clear from the results of the model that the physicians' preference for treatment using medical cannabis is lower among physicians dealing in the field of

psychiatry, among women, among physicians dealing with pain treatment and among physicians dealing with anti-inflammatory treatment. These findings were previously explained in terms of the complexity of medical cannabis treatment in these areas and/or their exposure to the patients' stress on the subject [14,15]. In contrast to physicians in the field of oncology, for example who are exposed apparently more to medical cannabis patients and are therefore more open to this therapeutic approach, especially in the aspect of terminally ill patients whose suffering can be alleviated by the treatment.

Background characteristics influence the perceptions of physicians regarding the treatment of medical cannabis such as field of expertise, seniority, gender, and personal involvement. These findings strengthen the conclusion that the physicians' conflict is complex and deep. Also, the results of the analysis show that the physicians' preference for medical cannabis treatment is positively influenced by their perceptions regarding the contribution of the medical cannabis reform. This makes sense because the purpose of the reform is to regulate medical cannabis. That is, the more the physician believes that there is proper regulation on the subject, the more open he will be to treatment with medical cannabis. Hence, the solution methods for solving problems related to the physicians' conflict regarding the treatment of medical cannabis are important for future dealing with the conflict.

5. Conclusions
In conclusion, as the involvement of physicians in decision-making and the further implementation of the medical cannabis reform in Israel increases, correspondingly, their degree of openness to the treatment of medical cannabis will also increase.

In this way, creating a pre-defined mechanism for making mutual decisions between expert physicians in the field and the policy outlines of the IMCA will strengthen the relationship between the IMCA and the expert physicians in the field as well as harness them for the benefit of the implementation of the cannabis reform in Israel and the expansion of medical cannabis treatment.

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