

WAMM Medical Marijuana Effectiveness Study

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Wo/Men's Alliance for Medical Marijuana

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A collective of patients and caregivers, creating community, building hope, dissolving barriers,
providing support and free medical marijuana since 1993

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Purpose of the Project

- To determine if there are physical, mood and perception changes resulting from use of the test article.
- To determine if the method of delivery affects measures of effectiveness.
- To determine if different types of cannabis affect diagnoses and measures of effectiveness.
- To assess the correlation between changes in mood and other measures of effectiveness.

Summary of Population

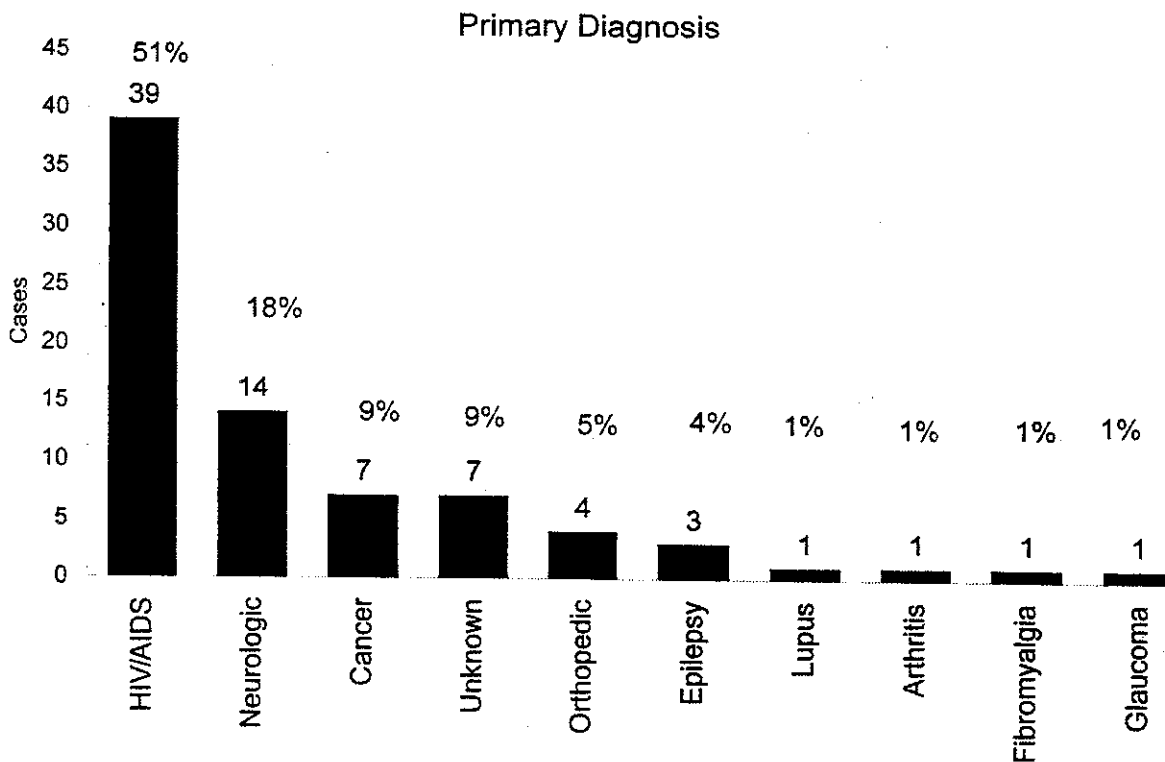
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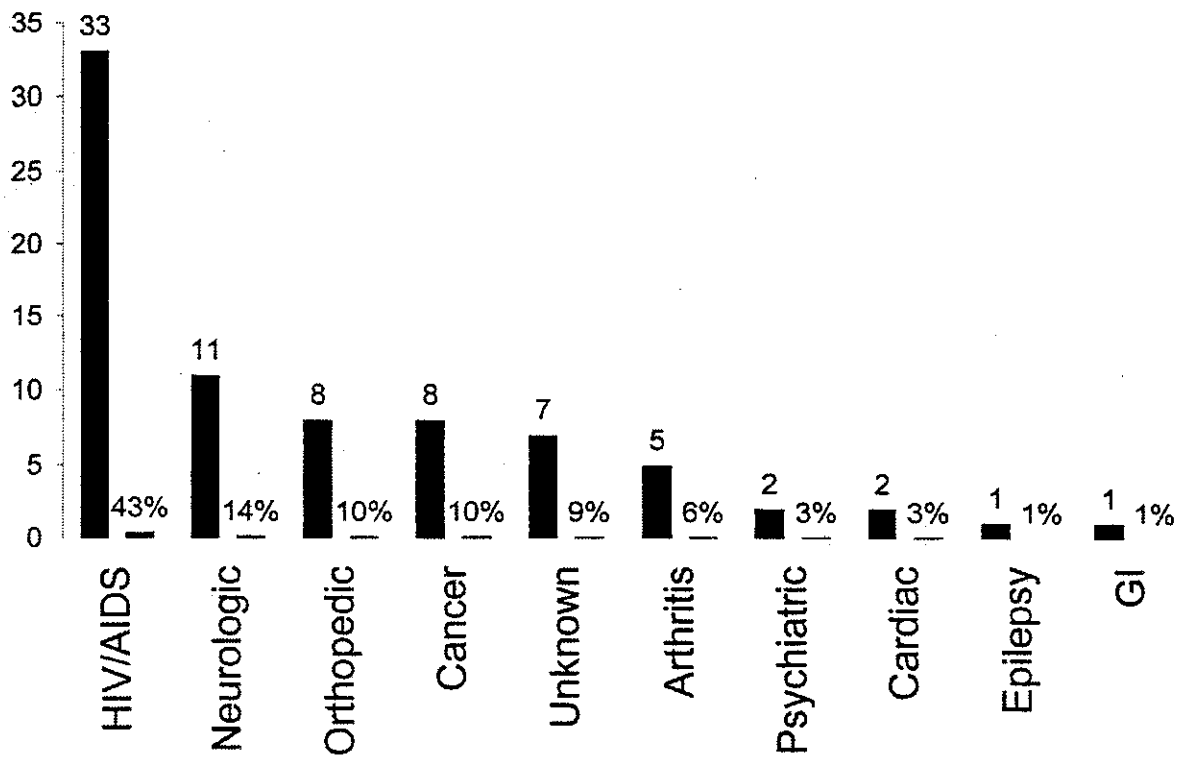
43 males (56%)

22 females (29%)

12 missing gender distinction (15%)

Description of Population by Primary Diagnosis



Description of Patient Population by Secondary Diagnosis**Questionnaire Structure Measures of Effectiveness**

Variable	None	Most	Desired Effect
Pain	1	10	Decrease
Energy	1	10	Increase
Mood	1	10	Increase
Nausea	1	10	Decrease
Appetite	1	10	Increase
Muscle Spasms	1	10	Decrease
Seizures	1	10	Decrease
Ocular	1	10	Decrease
Insomnia	1	10	Decrease
Awareness	1	10	Increase
Neuropathy	1	10	Decrease

Questionnaire Logistics

- 1892 Questionnaires Completed over 3 years
 - Range of 1 to 256 questionnaires
 - Average of 8 questionnaires/patient
 - Analysis completed based on the average number of questionnaires completed (to normalize data for analysis)

Statistical Methods

- 432 questionnaires analyzed
- Frequency analysis, Paired t-tests, Paired t-test correlations, One Way ANOVA, Post-Hoc (Bonferroni), Pearson Correlation and Multivariate tests performed
- One Way ANOVA conducted on variables using the following 3 groups
 - Group 1 – test article “ingested”
 - Muffins
 - Mothers milk
 - Group 2 – test article “inhaled”
 - African Queen
 - Purple Indica
 - Group 3 – “Other”
- One Way ANOVA performed on the following test article groups:
 - Sativa (261 – 61%)
 - Other (105 – 24%)
 - Indica (65 – 15%)
- Multivariate Tests performed for type of Cannabis, diagnosis, and change in variable
 - Pillai’s Trace
 - Wilks’ Lambda, and
 - Tests of Between-Subjects Effects
- One Way ANOVA, Bonferroni, Post-Hoc tests performed for definition of diagnosis and treatment effectiveness

All tests performed using SPSS (Statistical Program for Social Scientists) Version 9.0

Question One

- Are there physical, mood and perception changes resulting from use of the test article?

Paired Samples t test

- Comparing means before and after
 - 95% confidence interval (2-tailed)

<i>Variable</i>	<i>Before</i>	<i>After</i>	<i>Difference</i>
Pain	6.98	3.26	-3.72 ± 3
Energy	4.12	6.04	1.92 ± 3
Mood	4.30	7.32	3.02 ± 4
Nausea	7.06	2.78	-4.28 ± 3
Appetite	3.02	6.96	3.94 ± 4
Awareness	5.73	6.97	1.24 ± 3

All are significant

Question Two

- Does change in variable vary by method of treatment - ingested, inhaled or other?

Question Two - Means of Variable Changes by Mode of Consumption

	1	2	3	p
Pain	-3.75	-3.45	-3.67	0.274
Energy	2.05	1.14	1.18	0.630
Mood	2.98	2.54	3.81	0.840
Nausea	-4.39	-4.50	-2.22	0.934
Appetite	4.05	2.94	3.28	0.418
Spasm	-3.42	-3.95	-3.60	0.008*
Seizure	-0.14	N/A	-4.75	0.177
Ocular	-2.63	-2.54	-2.86	0.099
Insomnia	-3.88	-3.44	-4.28	0.036*
Awareness	1.31	-0.41	1.72	0.259

*Significant

ANOVA

Question Two

Examination of the mean change (One way Anova – 95% confidence interval)

Significance was found for the following variables

Spasm p = 0.008

Insomnia p = 0.036

Interpretation of ANOVA Method of Test Article Delivery

- Group 1 is different than group 3
- Average group 1 (ingested) = -4.39
- Average group 2 (inhaled) = -4.50
- Average group 3 (other) = -2.20
- There is greater improvement in nausea (0.36) with ingestables vs. "other"
- Ingestables and inhaled groups are not different

Question Three

- Are changes in variables related to the different types of cannabis and primary diagnoses?

Mean Change of Variables in Treatment Test Article Groups

	Other	Sativa	Indica	p
Pain	-3.49	-3.99	-2.93	0.078
Energy	2.22	1.53	3.06	0.012*
Mood	2.94	2.89	3.76	0.327
Nausea	-4.67	-4.19	-4.01	0.470
Appetite	4.32	3.41	5.22	0.005*
Spasm	-4.33	-3.53	-2.23	0.071
Seizure	-0.67	-2.12	0.50	0.316
Ocular	-3.27	-2.34	-3.00	0.646
Insomnia	-4.53	-3.82	-3.18	0.221
Awareness	1.75	0.96	1.24	0.173

One Way Anova – 95% CI

*Significant

Interpretation of ANOVA Method of Test Article Treatment Group

- The Indica Group is different than Sativa Group
Average Indica = 3.06
Average Sativa = 1.53
Average Other = 2.22
- There is greater improvement in energy (0.012) with Indica vs Sativa and "Other"
- Sativa and Other treatment groups are not different

Interpretation of ANOVA Treatment Group

- Indica was more effective to increase energy and appetite in any primary diagnosis group.
- Use of any test article was effective in treating Nausea in the Orthopedic and HIV/AIDS diagnosis group.

Mean Change in Variable by Primary Diagnosis

	Ortho	Neuro	AIDS	Other	Cancer	p
Mood	4.36	4.05	2.87	1.33	2.64	0.001*
Pain	-4.93	-4.02	-3.31	-3.90	-3.27	0.011*
Energy	3.54	1.33	2.31	1.07	1.23	0.017*
Mood	4.36	4.05	2.86	1.33	2.64	0.094
Nausea	-1.58	-4.21	-4.54	-3.97	-4.18	0.015*
Appetite	4.57	3.50	4.44	3.08	3.00	0.010*
Spasm	-4.17	-4.05	-1.83	-3.29	-4.91	0.401
Seizures	NA	-1.86	-0.89	NA	NA	0.001**
Ocular	NA	-2.91	-2.00	-4.00	NA	0.334
Insomnia	-4.68	-4.66	-3.49	-2.93	-5.08	0.000*
Awareness	2.21	1.07	1.15	0.65	2.25	0.000*

One Way Anova 95% CI

*Significant

**Small sample size unable to correlate

Interpretation of ANOVA Method for Primary Diagnostic Group

- The Orthopedic and Neurologic group are different than the "Other" primary diagnostic group.
- There is greater improvement in Mood ($p = 0.008$) for the Orthopedic group vs. "Other"
- There is greater improvement in Mood ($p = 0.001$) for the Neurologic group vs. "Other"

Average Orthopedic	4.36
Average Neurologic	4.04
Average HIV/AIDS	2.87
Average "Other"	1.33
Average Cancer	2.64

- There is no difference between the AID/HIV and Cancer groups

Interpretation of ANOVA Method for Primary Diagnostic Group

- The Orthopedic group is different than the "Other" primary diagnostic group.
- There is greater improvement in Energy ($p = 0.43$) for the Orthopedic group than "Other"

Average Orthopedic	3.54
Average Neurologic	1.33
Average HIV/AIDS	2.31
Average "Other"	1.07
Average Cancer	1.23

- There is no difference between the Neurologic, AID/HIV, and Cancer groups

Interpretation of ANOVA Method for Primary Diagnostic Group

- The HIV/AIDS group is different than the Orthopedic primary diagnostic group
- There is greater improvement in Nausea ($p = 0.04$) in the HIV/AIDS group than Orthopedic primary diagnostic group

Average Orthopedic	-1.58
Average Neurologic	-4.21
Average HIV/AIDS	-4.54
Average "Other"	-3.97
Average Cancer	-4.18

- There is no difference between the Neurologic, Other, and Cancer groups

Interpretation of ANOVA Method for Primary Diagnostic Group

- There is improvement in Appetite (0.010) for all diagnostic groups
- There is no difference in mean change for the Appetite variable for specific primary diagnostic groups

Average Orthopedic	4.57
Average Neurologic	3.50
Average HIV/AIDS	4.44
Average "Other"	3.08
Average Cancer	3.00

Interpretation of ANOVA Method for Primary Diagnostic Group

- There is improvement in Insomnia ($p = 0.000$) for all diagnostic groups
- There is no difference in mean change for the Insomnia variable for specific primary diagnostic groups

Average Orthopedic	-4.68
Average Neurologic	-4.66

Average HIV/AIDS	-3.49
Average "Other"	-2.93
Average Cancer	-5.08

Interpretation of ANOVA Method for Primary Diagnostic Group

- There is improvement in Awareness ($p = 0.000$) for all diagnostic groups
- There is no difference in mean change for Awareness specific to primary diagnostic groups

Average Orthopedic	2.21
Average Neurologic	1.07
Average HIV/AIDS	1.15
Average "Other"	0.65
Average Cancer	2.25

Correlation Analysis Question Four

- Is change in mood correlated to change in energy?
 $p = .035^*$
- Is change in mood correlated to change in pain?
 $p = .817$
- Is change in mood correlated to change in nausea?
 $p = .434$
- Is change in mood correlated to change in insomnia?
 $P = .647$
- Is change in mood correlated to change in awareness?
 $P = .073$

*Significant

Conclusions

- There were observed changes in pain, energy, nausea, appetite, and awareness variables from the use of the test article.