

UNIVERSITY OF SASKATCHEWAN

A Meta-Analysis of Sexual Offense Specific Treatment Outcome: The Importance of Program and Staffing Moderators

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Full reference: Gannon, T. A., Olver, M. E., Mallion, J. S., & James, M. (2018). *Does specialized psychological treatment for offending reduce recidivism? A meta-analysis examining staff and program variables as predictors of treatment effectiveness.* Manuscript under review

Overview

- What works with sexual offending?
 - The need for another meta-analysis?
- Meta-analytic Method
- Results
 - Global findings
 - Staffing moderators
 - Program moderators
 - Setting moderators
 - Methodological moderators
- Discussion and take home conclusions

What Works with Sexual Offending?
A methodological primer and review of existing works to date

What Works with Sexual Offending? Early Reviews

- Furby, Weinrott, and Blackshaw (1989)
 - Unsuccessfully attempted meta-analysis of extant sexual offense treatment program (SOTP) outcome literature
 - Many problems...
 - Poor designs
 - Lack of control groups
 - Small sample sizes
 - Short follow-up times
 - Insufficient ways to account for program attrition
 - Antiquated treatment programs

What Works with Sexual Offending?

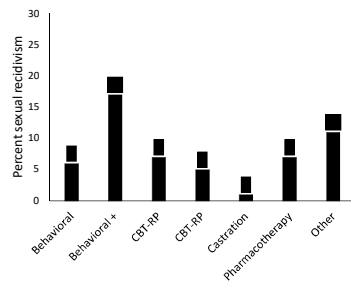
- Critical methodological issues:
 - “Matching” treatment and comparison groups
 - Controlling for confounding variables (e.g., age, offending history)
 - Length of follow-up
 - Treatment completion vs. non-completion
 - Defining the outcome variable “recidivism”
 - Random assignment
 - Program content
 - Treatment integrity

What Works with Sexual Offending?

- Evaluating treatment efficacy?
 - 1.) Comparing recidivism rates between a treated and untreated control.
 - 2.) Meta-analyses
 - Hall (1995)
 - Gallagher, Wilson, Hirschfield, Coggeshall, & MacKenzie (1999)
 - Hanson, Gordon, Harris, Marques, Murphy, Quinsey, & Seto (2002)
 - Löesel & Schmucker (2005)
 - Hanson, Bourgon, Helmus, & Hodgson (2009)
 - Schmucker & Löesel (2017)
 - Gannon, Olver, Mallion, & James (2018)

Gallagher, Wilson, Hirshfield, Coggeshall, & MacKenzie (1999)

- Meta-analysis $k = 25$ SOTP recidivism studies
- Cognitive-behavioral and surgical castration were most effective



Hanson, Gordon, Harris, Marques, Murphy, Quinsey, & Seto (2002)

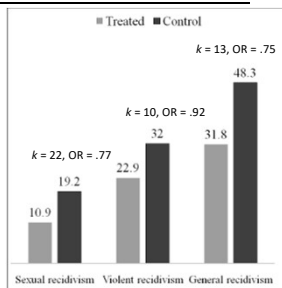
- SOTP efficacy $k = 43$ SOTP outcome studies ($N = 9,454$)
- 46 month follow up
- Sexual recidivism: Treatment = 12.3, Control = 16.8
- "Current treatments" (CBT, systemic) most effective
 - Overall $k = 38$, odds ratio (OR) = 0.81
 - "Best" 15 studies Odds Ratio (OR) = 0.60

Löesel & Schmucker (2005)

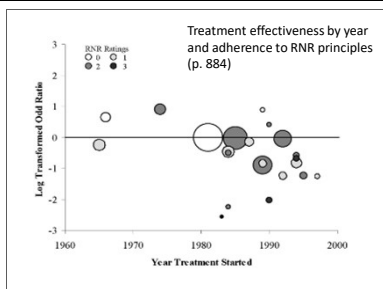
- SOTP efficacy $K = 69$, $N = 22,181$ comparing treated to untreated controls
 - 11.1 (treated) vs. 17.5 (control)
 - 6.4% absolute difference
 - ≈ 37% relative difference
 - CBT and biomedical approaches largest treatment effects

Hanson, Bourgon, Helmus, & Hodgson (2009)

- Meta-analysis $k = 23$ SOTP outcome studies
- Over 130 documents reviewed
- Studies screened for rigor using CODC guidelines
- Efficacy examined as a function of risk, need, responsivity (RNR) program adherence



Hanson, Bourgon, Helmus, & Hodgson (2009)



Schmucker & Löesel (2017)

- SOTP efficacy $K = 29$, $N = 10,387$ comparing treated to untreated men
 - Updated to 2010 and studies methodologically screened using Maryland Scientific Methods Scale (only Level 3 or higher included)
 - 10.1 (treated) vs. 13.7 (control)
 - 3.6% absolute difference
 - ≈ 26% relative difference
 - Smaller effects than previous meta
 - Significant effects for outpatient ($k = 12$) and hospital ($k = 5$) programs, but not prison-based ($k = 9$)

Mews, Di Bella, & Purver (2017)

- United Kingdom Ministry of Justice examination of “Core” SOTP
 - Delivered across England and Wales 2000-2012
 - $N = 2,562$ treated and 13,219 untreated men with 8.2 year follow-up
 - Propensity score matching on 87 variables
- Results
 - Sexual recidivism higher for treated (8%) than untreated (10%) controls
 - Absolute increase of 2% and relative increase of 20%
- Implications?
 - Cast significant international doubt on treatability of sexual offending population and the efficacy of specialized SOTPs

The Need for Another Meta-Analysis?

- Current study a broader meta-analysis of specialized treatments for specific offender groups (i.e., sexual, violent, intimate partner violent)
- The need?
 - Inclusion of new studies since Schmucker & Löesel (2017)
 - Including Mews et al. (2017)
 - Examination of staffing and program moderators not previously examined
 - Does it matter who delivers the program and if there is oversight?

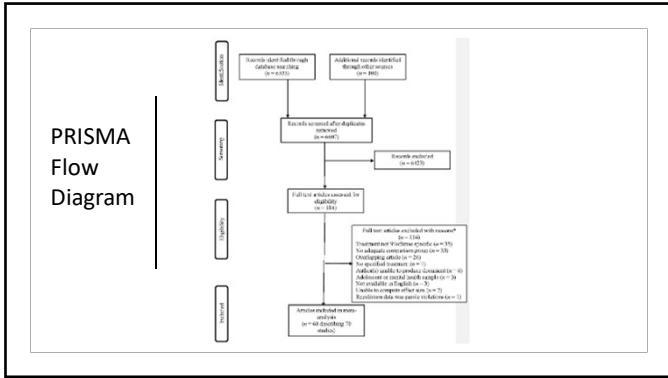
Meta-Analytic Method

Meta-Analytic Method

- Databases searched
 - PsychINFO®, Web of Science™, ProQuest®, MEDLINE, Dissertation Abstracts International, the Cochrane Controlled Trials Register, the National Criminal Justice Reference Service, the Ministry of Justice, Home Office, Canada Correctional Services, New Zealand Correctional Services, the UK National Archives, and the National Police Library (UK).
- Publication reference lists
- Requests to three international Listservs
- Individual e-mails to key researchers identify unpublished data

Meta-Analytic Method

- Study Inclusion Criteria:
 1. Evaluate an offense specific (i.e., specialized) psychological treatment provided to adjudicated offenders
 2. Examine recidivism as an outcome variable
 3. Comparison group of adjudicated offenders who did not receive the specialized treatment in question (or comparable treatment)—and for whom recidivism was also examined
 4. Descriptive or inferential statistics adequate for effect size calculation
 5. Excluded youth, low IQ, patients in mental health facility



Meta-Analytic Method

Variable	k	n or M (SD)	Variable	k	n or M (SD)
Age (years)	47	35.3 (4.4)	Treatment Approach		
Racial Ancestry	40		CBT	50	
White		10,950	Duluth	6	
Black		2,863	Psychoeducational	5	
Indigenous		2,323	Behavioral	2	
Hispanic		707	Unknown	7	
Asian		92	Program Length (hours)	51	170.2 (171.5)
Other		1,604	Treatment Service Quality		
Unknown		111	Weaker	11	
Program Focus			Promising	22	
Sexual offense	47	41,476	Most promising	14	
Domestic violence	19	12,900	Unknown	23	
Violent offending	4	1,228	Psychologist Present		
Setting			No	11	
Prison	25		Inconsistent	28	
Special facility (e.g., hospital)	7		Consistent	12	
Community	35		Unknown	19	
Modality			Supervision Provided		
Group	39		No	2	
Mixed	21		Yes	36	
Individual	1		Unknown	32	
Unknown	9				

Meta-Analytic Method

Variable	k	n or M (SD)	Variable	k	n or M (SD)
Supervision Provider			Publication Source		
Psychologist	22		Journal article	39	
Non-psychologist	3		Government report	19	
Psychologists and non-psychologists	8		Theses/dissertation	6	
Unknown	36		Unpublished materials	3	
Staff Delivery			Poster/presentation	2	
Individually facilitated	11		Book chapter	1	
Co-facilitated	28		Country		
Mixed	1		USA	32	
Unknown	36		Canada	17	
Matched Control Group			UK	8	
Randomized design			New Zealand	6	
Yes	21		Australia	4	
No	49		Israel	1	
Recidivism Quality Score			Netherlands	1	
Very High quality	23		Taiwan	1	
High quality	30		Follow-up Time (months)	30	67.6 (36.0)
Moderate quality	9				
Low quality	3				
Very Low quality	1				

Meta-Analytic Method

- Odds Ratio (OR) primary ES for analysis:

$$OR = \frac{recid_{treat} + nonrecid_{nt}}{recid_{control} + nonrecid_{contol}}$$
 - Treatment effect → OR < 1.0 (95% CI below 1.0)
 - No treatment effect → OR ≥ 1.0 (95% CI includes 1.0)
 - Negative treatment effect → OR > 1.0 (95% CI above 1.0)
- How to interpret?
 - OR = 0.70 → 30% decrease in the odds of sexual recidivism associated with SOTP or group membership in SOTP moderator

Meta-Analytic Method

- Method of aggregation
 - Fixed vs Random effects → Random effects reported for this presentation
 - Random effects offsets influence of very large samples with extreme findings on ES – small samples receive better representation
- Moderator analyses
 - Staffing
 - Program content
 - Treatment setting
 - Methodological
- ES heterogeneity
 - I² – values 25%, 50%, 75% small, medium, and large heterogeneity respectively

Results: Global Findings

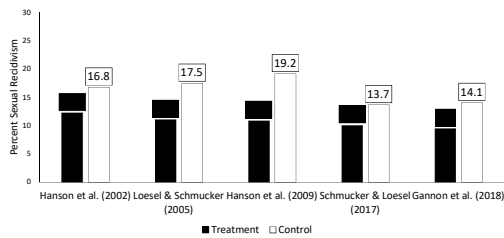
Global Findings: Overall Analyses

Outcome	OR	95%CI	Q	I ²	n	k
Sexual	0.64	0.53, 0.76	118.8**	64.6	25,521	43
With outlier	0.66	0.54, 0.80	203.7**	78.9	41,291	44
Violent	0.52	0.40, 0.67	178.0**	86.5	33,346	25
General	0.66	0.55, 0.79	107.7**	76.8	17,632	26

Comparison to Previous Meta-Analyses

Meta-analysis	OR	95%CI	I ²	n	k
Hanson et al. (2002)	0.81	0.70, 0.93	-	9,454	38
Lösel & Schmucker (2005)	0.59	0.45, 0.74	-	22,181	74
Hanson et al. (2009)	0.66	0.49, 0.89	-	6,746	22
Schmucker & Lösel (2017)	0.71	0.56, 0.90	48.1	10,387	29
Gannon et al. (2018)	0.64	0.53, 0.76	64.6	25,521	43

Treatment-Control Comparisons across Meta-Analyses



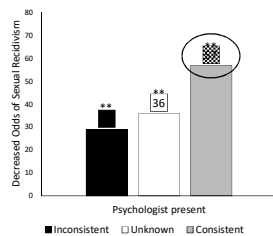
Conclusions on Global Findings

- Significant ES, with or without outlier, for all three outcomes
- Remarkable continuity in ES magnitude and observed rates of sexual recidivism for treatment-control group comparisons across studies
- Substantial ES heterogeneity
 - Underscores need for moderator analyses

Results: Staffing Moderators

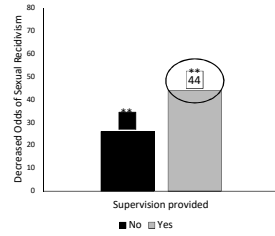
Psychologist Present During SOTP Services

Psychologist Present	OR	95%CI	I ²	n	k
Inconsistent	0.71	0.55, 0.90	69.6	12,996	20
With outlier	0.74	0.57, 0.97	83.0	28,766	21
Consistent	0.43	0.23, 0.81	77.4	2,875	7
None/unknown	0.64	0.52, 0.78	7.0	9,650	16



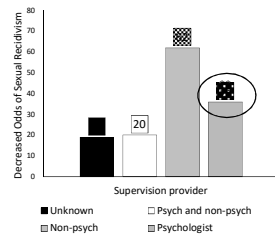
Supervision Provided for SOTP Services

Supervision provided	OR	95%CI	P	n	k
Yes	0.56	0.43, 0.73	74.5	14,011	22
With outlier	0.59	0.44, 0.79	86.9	29,781	23
None or unknown	0.74	0.59, 0.93	38.9	11,510	21



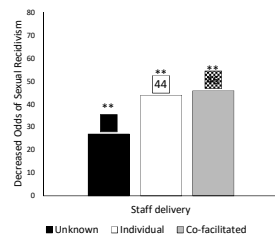
Supervision Provider for SOTP Services

Supervision Provider	OR	95%CI	P	N	k
Psychologist	0.54	0.40, 0.73	71.1	10,486	17
Non-psychologist	0.28	0.07, 1.07	0.0	173	1
Psychologist and non-psychologist	0.80	0.46, 1.42	90.1	18,989	5
Unknown	0.81	0.65, 1.02	45.1	10,800	17



Staff Delivery of SOTP Services

Staff Delivery	OR	95%CI	P	N	k
Individually facilitated	0.56	0.35, 0.91	81.4	4,554	9
Co-facilitated	0.54	0.37, 0.77	64.4	6,022	12
With outlier	0.59	0.38, 0.89	84.6	21,792	13
Unknown	0.73	0.59, 0.91	50.5	14,945	22



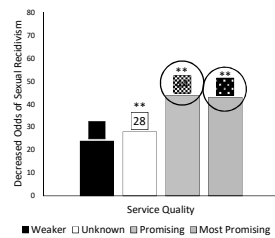
Staffing Moderator Conclusions

- Larger ES associated with:
 - Having a psychologist present during service delivery
 - Supervision of service delivery
 - Having a psychologist supervise that service delivery
 - Non-psychologist effect $k = 1$
- Co-facilitated vs. sole facilitated services yielded little difference in ES

Results: Program Moderators

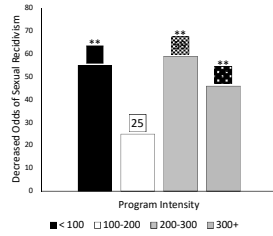
Service Quality for SOTP Services

Service Quality	OR	95%CI	P	N	k
Weaker	0.76	0.56, 1.04	32.3	5,612	5
Promising	0.56	0.40, 0.79	64.4	5,935	15
Most promising	0.57	0.35, 0.93	77.9	10,501	8
With outlier	0.66	0.38, 1.14	91.0	26,271	9
Unknown	0.72	0.53, 0.99	62.3	10,025	15



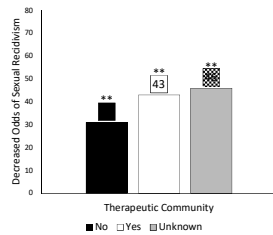
Program Intensity for SOTP Services

Program Intensity	OR	95%CI	<i>P</i>	<i>N</i>	<i>k</i>
< 100 hours	0.45	0.22, 0.93	67.9	1,471	6
100-200 hours	0.75	0.48, 1.19	79.0	6,348	9
With outlier	0.82	0.54, 1.24	85.6	22,118	10
200-300 hours	0.41	0.24, 0.71	48.1	1,158	4
300+ hours	0.54	0.35, 0.83	73.9	4,954	7



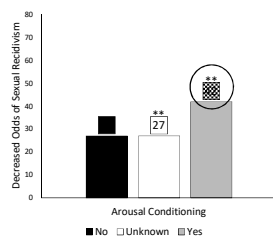
Therapeutic Community SOTP

Therapeutic community	OR	95%CI	<i>P</i>	<i>n</i>	<i>k</i>
No	0.69	0.54, 0.89	58.0	11,254	23
With outlier	0.73	0.55, 0.96	77.2	27,024	24
Yes	0.57	0.33, 0.98	84.5	4,322	5
Unknown	0.54	0.41, 0.71	48.7	9,679	14



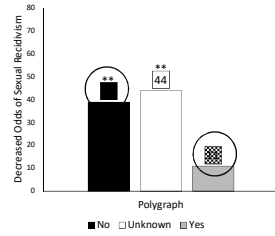
Arousal Conditioning Employed?

Arousal conditioning	OR	95%CI	<i>P</i>	<i>n</i>	<i>k</i>
No	0.73	0.37, 1.46	58.0	3,063	4
With outlier	0.92	0.53, 1.59	72.3	18,833	5
Yes	0.58	0.44, 0.74	75.4	11,753	23
Unknown	0.73	0.59, 0.91	20.1	10,705	16



Polygraph Employed?

Polygraph	OR	95%CI	I ²	N	K
No	0.61	0.46, 0.81	73.2	11,666	23
With outlier	0.64	0.47, 0.87	84.2	27,436	24
Yes	0.89	0.62, 1.29	50.6	4,200	6
Unknown	0.56	0.44, 0.72	36.4	9,655	14



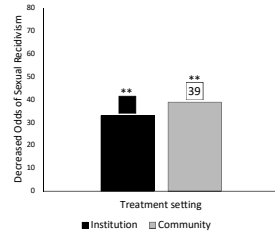
Program Moderator Conclusions

- Promising and Most Promising programs associated with largest reductions in sexual recidivism
- Consistent ES across program intensity
 - Except 100-200 hour (moderate intensity?)
- TC did not moderate ES
- Program interventions?
 - Arousal conditioning (most programs) → larger ES
 - Polygraph (minority of programs) → small and non-significant ES
 - Meta did not permit examination of impact of intervention per se, only aggregate programs employing the intervention

Results: Treatment Setting Moderators

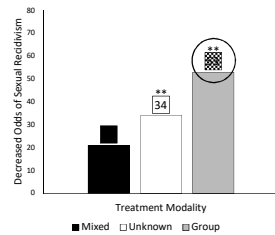
Treatment Setting for SOTP Services

Treatment setting	OR	95%CI	P	n	k
Institution	0.67	0.52, 0.85	72.6	14,224	25
With outlier	0.70	0.54, 0.92	84.7	29,995	26
Community	0.61	0.47, 0.79	45.6	11,296	18



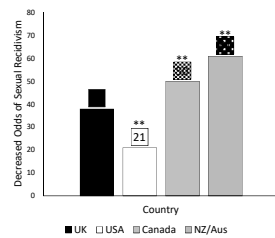
SOTP Treatment Modality

Treatment Modality	OR	95%CI	P	n	k
Group	0.47	0.34, 0.66	70.2	8,826	15
With outlier	0.51	0.33, 0.79	89.6	24,596	16
Mixed	0.79	0.62, 1.02	61.5	8,602	18
Unknown	0.66	0.52, 0.83	0.0	7,961	9



Country of SOTP Services

Country	OR	95%CI	P	N	k
UK	0.62	0.37, 1.04	21.2	3,304	5
With outlier	0.75	0.42, 1.35	71.2	19,074	6
USA	0.79	0.65, 0.96	42.9	15,173	21
Canada	0.50	0.33, 0.76	75.4	4,359	10
NZ/Aus	0.39	0.27, 0.55	23.3	2,419	6



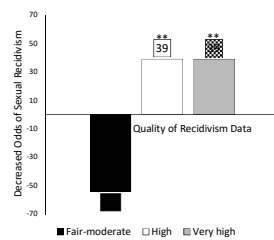
Treatment Setting Conclusions

- SOTPs in institutional and community settings comparable reductions in sexual recidivism
- Group programs largest ES
- Some ES variation across country
 - Canada and NZ/Australia largest ES

Results: Methodological Moderators

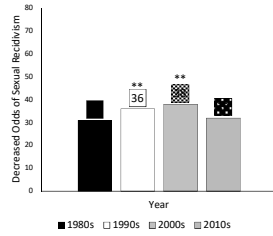
Quality of Recidivism Data

Treatment Modality	OR	95%CI	I ²	n	k
Fair-moderate	1.54	0.71, 3.36	0.0	293	2
High	0.61	0.48, 0.78	65.6	15,712	24
Very high	0.61	0.47, 0.80	66.5	9,230	16
With outlier	0.66	0.47, 0.92	86.3	25,000	17



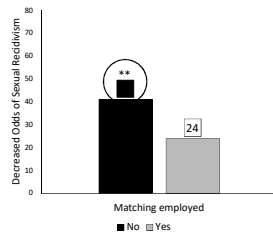
Year of Study

Year	OR	95%CI	I ²	N	k
1980s	0.69	0.24, 2.03	61.5	386	3
1990s	0.64	0.49, 0.83	22.7	5,532	13
2000s	0.62	0.47, 0.80	73.6	15,075	18
2010s	0.68	0.42, 1.10	76.1	4,528	9
With outlier	0.75	0.47, 1.21	86.3	20,298	10



Matching Employed

Treatment setting	OR	95%CI	I ²	n	k
No	0.59	0.48, 0.74	63.6	17,041	31
Yes	0.76	0.57, 1.02	60.9	8,480	12
With outlier	0.82	0.59, 1.13	81.2	24,250	13



Methodological Moderator Conclusions

- Generally consistent ES magnitudes over different time intervals
 - Strongest effects for 90s and 2000s
- High quality recidivism data = better findings
 - Importance of reliably measuring outcome
- Most studies did not employ matching
 - Weaker effects for matched designs

Discussion and Take Home
Conclusions

Staffing Considerations

- Any warm body will not do...
 - Credentialed and trained in SOTP
- Staff need to be trained and supervised
- Work together and not at cross purposes

Program Considerations

- The content of the program matters
 - RNR also applies to SOTP
 - Programs with arousal conditioning did better, those employing polygraph fared more poorly
 - Examination only at aggregate program level
- Intensity matters
 - Matched to risk level
 - Less intensity for community, greater for institution

Setting Considerations

- Similar effects for institutional and community programs
 - Contrast to Schmucker & Löesel (2017)
- Group programs fared the best
- Most countries generally obtained a treatment effect
 - They know SOTP
 - Fluctuation in ES may reflect RNR adherence or program drift?

Methodology Considerations

- Matched designs weaker effects
 - Not the same as weak designs generating stronger effects
- Need for continued research
 - Matching and/or statistical controls on risk relevant variables
 - Quality of the outcome variable matters
- Reasonable consistency in ES but highest in 90s and 2000s
 - Program delivery declining in 2010s?
 - Credentialing of staff
 - Extensiveness of training
 - Program drift
 - Lack of supervision
 - Fiscal constraints

Thank You!

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