Impact of Shared Decision Making on Outcomes among Patients with Pain: A Systematic Review & Meta-Analysis

Harman Dhatt[1], PhD MPH; Srujitha Marupuru[1], PharmD; David Rhys Axon[1], PhD; Terri Warholak[1], PhD, Marion Slack[1], PhD

[1]The University of Arizona College of Pharmacy, Tucson, AZ

THE UNIVERSITY OF ARIZONA College of Pharmacy

Background

- Pain is a global public health issue with significant clinical, economic, and humanistic burden.[1]
- Shared Decision Making (SDM), "the process of interacting with patients who wish to be involved in arriving at an informed, values-based choice among two or more medically reasonable alternatives" can improve clinical outcomes, decrease decisional conflict, and increase patient knowledge.[2,3]

Objective

- To investigate the impact of SDM on clinical, humanistic, and economic outcomes compared to usual/standard of care among patients with pain.

Methods

Search Strategy & Study Selection

- A comprehensive search strategy was developed, and studies were identified using PubMed/Medline, Embase, PsycINFO, CINAHL, Cochrane, relevant websites and grey literature.
- Articles were eligible for inclusion if they were: published in English language, before June 2020, included human subjects, including patients diagnosed with pain and involved SDM and reported clinical, humanistic and economic outcomes.
- Two independent authors screened titles and abstracts, and then extracted data following a full-text review of included articles.

Risk of Bias

- RoB 2: A revised Cochrane risk-of-bias tool for randomized trials[4] and ROBINS-I: Risk of bias tool for a non-randomized study was used.[5]

Data Analysis

- Data were entered into comprehensive meta-analysis (CMA; Version 2, Englewood, NJ: Biostat) software for analysis.
- The descriptive variables were summarized in table format and for the meta-analysis, a random effects model was used, the standardized mean difference for each study was calculated, and a forest plot to pool the findings was developed.
- Cochran's Q and I^2 values were used to describe heterogeneity between studies and funnel plot and Kendall's tau were used to assess publication bias.
- The a priori alpha level was 0.05.

Characteristics of Included Studies

Years Published

- 2000 - 2020

Study Designs

- RCT (n=17)
- Cross-sectional (n=4)
- Prospective quality improvement study (n=2)
- Prospective study with randomized intervention groups (n=1), prospective cohort (n=1), retrospective cohort (n=1), before-after study (n=1), and pre-post intervention experimental (n=1)

Country

- US (n=22)
- Germany (n=3)
- Netherlands (n=1), UK (n=1), and Australia (n=1)

Therapeutic Area

- Chest pain, stable CAD/angina, symptomatic CAD (n=10)
- Low back pain, back surgery, lumbar disc herniation (n=7)
- Labor analgesia, cesarean delivery, hysterectomy (n=3); non-malignant chronic pain, musculoskeletal pain (n=3)
- Fibromyalgia (n=2); knee osteoarthritis (n=2); minor head trauma (n=1)

Types of DAs

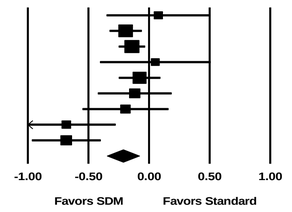
- Validated DA like CPC-DA, PCI Choice, Head CT Choice, health literacy-based DA (n=8)
- Video, interactive videodisc/video program with a booklet (n=5); computerized information tool, web/internet-based DA, tablet-based DA (n=5)
- Patient dialogue, SDM, SDM and positive reinforcement, patients who participated in decision (n=4)
- Patient DA (n=2); option grid DAs (n=1); booklet & audio guide (n=1); integrated approach including complementary & alternative medicine (n=1)

RCT- Randomized control trials; US- United States ;UK- United Kingdom; CAD-Coronary artery disease; DA-decision aids; CPC-DA-Chest pain choice decision aid; PCI-percutaneous coronary intervention ; CT-computed tomography; SDM-shared decision making

Results

Decisional Conflict Scale

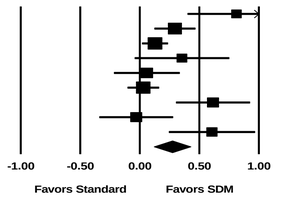
Study name	Sample size		Statistics for each study				
	SDM	Standard	Std diff in means	Standard error	Lower limit	Upper limit	p-Value
Bieber 2008	44	41	0.077	0.217	-0.349	0.503	0.723
Hess 2016	451	447	-0.193	0.067	-0.324	-0.062	0.004
Simon 2012	691	652	-0.141	0.055	-0.248	-0.034	0.010
Hochlehnert 2006	34	41	0.052	0.232	-0.403	0.507	0.822
Raynes 2010	395	201	-0.078	0.087	-0.248	0.092	0.370
Hadden 2020	91	78	-0.118	0.154	-0.421	0.185	0.445
Coylewright 2016	65	59	-0.194	0.180	-0.548	0.159	0.281
Case 2019	50	49	-0.682	0.207	-1.087	-0.277	0.001
Hess 2012	101	103	-0.683	0.144	-0.965	-0.400	0.000
			-0.213	0.068	-0.345	-0.080	0.002



Random Effects Meta Analysis

Knowledge

Study name	Sample size		Statistics for each study				
	SDM	Standard	Std diff in means	Standard error	Lower limit	Upper limit	p-Value
Case 2019	50	49	0.812	0.209	0.403	1.222	0.000
Raynes 2010	395	201	0.295	0.087	0.124	0.466	0.001
Simon 2012	691	652	0.128	0.055	0.021	0.235	0.019
Phelan 2001	47	53	0.354	0.202	-0.041	0.750	0.079
Hess 2012	101	103	0.060	0.140	-0.215	0.334	0.670
Hess 2016	451	447	0.029	0.067	-0.101	0.160	0.660
Hadden 2020	91	78	0.615	0.158	0.306	0.925	0.000
Simmons 2015	80	82	-0.030	0.157	-0.338	0.278	0.850
Coylewright 2016	65	59	0.606	0.184	0.246	0.967	0.001
			0.274	0.078	0.121	0.428	0.000



Random Effects Meta Analysis

Discussion & Conclusion

- There was a statistically significant reduction in decisional conflict and increase in patient knowledge as a result of using SDM.
- The findings are consistent with those reported in the Cochrane Review[6] evaluating impact of SDM among patients facing treatment or screening decisions across various therapeutic areas.
- The impact of SDM tools on patient satisfaction remains inconsistent and elusive, warranting further real-world studies.

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Disclosure: Authors have nothing to disclose. For more information, contact Srujitha Marupuru at marupuru@pharmacy.arizona.edu