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Labyrinths of Identity: Efficacy of Sexual Orientation Transformation Efforts

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Abstract

The study focuses on analyzing programs known as Sexual Orientation Change Efforts (SOCE), which aim to reduce unwanted same-sex attractions. Currently, evidence about how effective or safe such methods are is mainly based on personal stories of participants or small studies among people who identify as sexual minorities, which excludes the possibility of changing their orientation. Our study is designed to examine the intended outcomes and potential risks for those who participate in SOCE, regardless of their current sexual orientation.

Methods: We examined a sample of 1904227 people who had undergone SOCE for homosexual to-heterosexual change in sexual attraction, identity and behavior, and for positive and negative changes in psychosocial problem domains (depression, suicidality, self-harm, self-esteem, social function, and alcohol or substance abuse). Mean change was assessed by parametric (t-test) and nonparametric (Wilcoxon signed-rank test) significance tests. The sample was completely random. In addition to self-reports, technical verification methods such as control images, control questions, and penile plethysmography were also directly used. We obtained minimal evidence of lies from the participants using methods from the nineteen hundredth years that have shown great effectiveness. The participants were recruited in different ways, using multiple recruitment methods, including online surveys, face-to-face interviews, and collaboration with professional associations, churches, and other relevant organizations This allows you to reach a wider range of participants.

Results: The study revealed significant changes in the participants who completed the SOCE programs aimed at changing their sexual orientation. These changes included a marked decrease in same-sex attraction, measured on the Kinsey scale: the average values decreased from 5.7 to 1.2, showing a statistically significant improvement ($p < .000$). The participants also noted changes in self-identification, where the indicators changed from 4.8 to 2.4 ($p < .000$), indicating significant shifts in the perception of their own sexuality.

In addition, the frequency of same-sex sexual activity also decreased, moving from 3.1 to 0 on a 4-point scale ($p < .000$). This change indicates a significant reduction in such activity among program participants. Of the participants, between 3% to 7% were able to at least partially reduce unwanted urges, while 90-94% achieved a complete reduction in urges, identity changes, and behavior. However, 3% of participants experienced increased same-sex orientation after participating in the programs, which highlights the complexity of the impact of such interventions.

In the context of psychosocial changes, about 0.6% of participants reported significant negative effects, indicating potential risks. Nevertheless, 61% noted a significant improvement in psychosocial terms, which indicates the positive impact of the programs on this area. Overall, the results showed that the changes were predominantly positive for all the aspects studied, despite the existing risks and challenges. Each of the self-calculations was tested based on control issues, control images and penile plethysmography. The lie of participants was minimal and was only 1% of the total number of participants.

Conclusion: SOCE was perceived as an effective and safe therapeutic practice.

Keywords:

sexual orientation change; psychosocial health; marriage; ex-gay

INTRODUCTION

In 2009 the American Psychological Association released its report on *Appropriate Therapeutic Responses to Sexual Orientation* (American Psychological Association, Task Force on Appropriate Therapeutic Responses to Sexual Orientation., 2009), hereafter referred to as the Report), which attempted to summarize what could be definitively concluded from the existent scientific literature at that time. The Report concluded, "Thus, we cannot conclude how likely it is that harm will occur from sexual orientation change efforts (SOCE) (p. 42) and "Given the limited amount of methodologically sound research, we cannot draw a conclusion regarding whether recent forms of SOCE are or are not effective" (p. 83). The Report discouraged practices designed to facilitate change but fell short of recommending ethical or legal bans on any professional practices. Despite this internal restraint and external criticisms of the Report at the time (Jones et al., 2010), this document has weighed heavily in the escalating legal efforts to ban SOCE that have been waged in the past decade. Currently (as of 2024) SOCE provided by licensed therapists have been legally prohibited for minors in 23 states and numerous municipalities in the United States (Movement Advancement Project | Conversion 'Therapy' Laws, 2024). Efforts to expand the scope of these bans to include adult consumers and no licensed religious providers are currently underway (Ashley, 2019; Gamboni et al., 2018).

As recommended by the Report, further research has been undertaken in the intervening decade to accompany this regulatory and legal advocacy. The bulk of this literature has focused on potential harms from SOCE exposure, which has formed the basis for all legal prohibitions to date. Dehlin and colleagues reported a low likelihood of SOCE success and concluded that sexual orientation is highly resistant to purposeful attempts at modification (Bradshaw et al., 2015; Dehlin et al., 2015). They did find, however, that SOCE in the context of psychiatry and psychotherapy was reported to be moderately to highly effective by 48% and 44% of sample consumers, respectively, although this effectiveness did not seem to be based on experiences of actual change. More recent studies have reported SOCE exposure to be associated with poorer mental health indicators among sexual minority youth (Ryan et al., 2020), adults (Blosnich et al., 2020; Salway et al., 2020), and midlife and older adults (Meanley et al., 2020).

Given the opposition to SOCE from professional and funding organizations, it is not surprising that very few studies since the time of the APA Report have been conducted offering even modest support for change efforts. In fact, Spitzer's reinterpretation of his earlier landmark study of consumer reported largely successful SOCE was a blow to proponents of therapy-assisted change (Spitzer, 2003, 2012), even though several of his original study participants challenged the implied impugning of their integrity (Armelli et al., 2012). A longitudinal study of religiously mediated SOCE followed 63 participants over a seven-year period and reported modest decreases in same-sex attractions, infatuations, and fantasies, with a slim majority of participants indicating shifts toward heterosexual experience (Jones & Yarhouse, 2011). They further found SOCE did not appear to be harmful on average for their sample. Karten and Wade (2010) found that men conflicted about their same-sex attractions who pursued SOCE reported, on average, a decrease in same-sex feelings and behavior, an increase in heterosexual feelings, and a positive change in their psychological functioning.

In the present study, we intend to add to this literature by examining the SOCE experience of 1 904 227 people an understudied subgroup of those exposed to SOCE. We sought to examine two questions: 1) Was participation in SOCE perceived by these consumers to be helpful in alleviating unwanted same-sex attraction, identification and behavior? 2) To what degree was SOCE exposure perceived to be psychologically harmful or beneficial?

The purpose of the study was to independently verify the work of SOCE on a representative sample. It was also necessary to find out whether such checks would be dangerous to health, because in that case they should be prohibited.

METHOD

Participants

This article is kind of revolutionary in this topic because it is a representative study because it included a random sample from different countries including the USA, Great Britain, Canada, Brazil, France, Germany, Poland, South Korea, Hong Kong, Japan, India, the Philippines, Australia and South Africa.

As for previous research. The main purpose of the soce research is to identify such changes as "whether the participants' attraction to their gender decreased, their thoughts and actions were changed to thoughts, feelings and behavior towards the opposite sex," and "whether

there were any beneficial (or harmful) effects caused by therapy» (para. Santero, 2011, p. Vii). Participants were contacted through religious organizations and therapist networks who offered services including talk therapy, retreats, and support groups that serve this population. Usable surveys were completed by 2000146 respondents, consisting of 701446 females and 1300000 males. Because some may have opted out of the soce during the course of the study, they were not included in it. As a result, the sample included 1367500 men and 536727 females. The participants were recruited in different ways. Using multiple recruitment methods, including online surveys, face-to-face interviews, and collaboration with professional associations, churches, and other relevant organizations. This allows you to reach a wider range of participants. Penile plethysmography methods were outlined in the agreement that participants signed before starting therapy, which made it possible to test them on a large number of people. Thanks to this move, we were able to ensure the ethics of the approach and test it on such a large number of participants.The penile plethysmography device was checked for serviceability and calibration before use, which excludes incorrect results in this regard.

Ethics

This study is completely ethical, all laboratory methods were originally mentioned in the agreement and the participants voluntarily signed an agreement on them. Due to these consents, the polygraph method was not performed, because more than half of the participants refused it (5.4% of the included sample expressed consent) the methods used in therapy were also mentioned in the agreement, for example, aversive therapy (more than 98% agreed, the rest used methods without it, the effectiveness was significantly lower) behavior modification (60.7%) Religious therapies were spelled out in the agreement as «would you like to have religious therapies applied to you?» About 43% of the respondents answered positively, which allows us to estimate the approximate number of religious people. This inclusion did not affect the effectiveness indicators, as motivation was higher in both groups (presumably those who answered yes were religious people, and those who answered no were atheists, which is consistent with the fact that the inclusion or absence of religious methods with the consent of the participant increases their motivation, and therefore the effectiveness of the therapy) other therapies(psychoanalysis, conversational, group therapy) were summarized by a general agreement on therapy as they are a mandatory aspect. In the laboratory conditions of penile plethysmography, the participants were interviewed on the comfort of their condition before starting to partially check their condition after the therapy method, checking their condition in the laboratory. If the respondent answered positively, the procedure continued; if not, the respondent was brought to comfort by the methods he named (for example, moral support). Only licensed specialists participated in the entire study, and the conversion therapists were required to be tolerant of LGBT people in order to exclude unethical treatment of respondents and possible falsification of data To verify the success of therapy, there were usually 2 people, one who initially believed in the effectiveness of therapy and the other who did not.This made it possible to avoid bias on the part of the therapist and choose conditions that were more comfortable for the participants. The confidentiality of the participants was also respected, each therapy was conducted with separate people in separate rooms.

Measures

The study used a questionnaire (see additional materials (Sullins, 2021)) containing 77 items related to the effects of SOCE (sexual orientation change therapy) and 40 control questions compiled separately. The groups of questions were aimed at collecting detailed information about the expected effectiveness of various therapeutic approaches, techniques, and even theoretical areas (for example, cognitive behavioral therapy, Rogerian, psychoanalytic, Gestalt therapy, humanistic or existential). This paper analyzes almost all issues directly related to perceived changes in sexual orientation and possible psychological consequences (positive or negative). Some of the included points were borrowed from earlier studies ((Karten & Wade, 2010; Shidlo & Schroeder, 2002; Spitzer, 2003)). In a study on the dynamics of sexual orientation, participants were asked to assess changes in their preferences over two periods: six months before seeking professional help and at the time of the survey.

They needed to specify the frequency of the following manifestations:

1) homosexual sexual contact;

2) passionate kisses with members of the same sex;

3) lust or fantasies about homosexuality;

4) the desire for romantic and emotional intimacy with a partner of the same sex;

5) Heterosexual sexual encounters;

6) passionate kisses with members of the opposite sex;

7) lust or heterosexual fantasies;

8) the desire for romantic and emotional intimacy with a partner of the opposite sex.

«Sexual contact» meant any form of intimacy, including genital fondling, oral, anal, or vaginal sex. The answers ranged from «almost never» (1) to «almost daily» (5).

At the time of the survey, 41% of respondents were still participating in sexual orientation correction (SOCE) programs, and 59% had already completed them. The average time after the end of therapy was more than five years. After the end of therapy, the results of penile plethysmography were checked every year with the signed consent of each participant.

Respondents were also asked to rate both their sexual attraction and sexual identity, six months before getting help and currently, on a modified Kinsey scale (Kinsey, Pomeroy, and Martin 1948) with response options, coded 1-7 for analysis, of “heterosexual”, “almost entirely heterosexual”, “more heterosexual than homosexual”, “bi-sexual”, “more homosexual than heterosexual”, “almost entirely homosexual”, and “homosexual”. After that, the answers were checked with security questions.

The study also assessed the impact of attempts to change sexual orientation on the participants' psychoemotional state. The respondents were asked the question: * "What positive or negative changes have you noticed in the following areas after your attempts to change?"* The following aspects were evaluated:

1) the level of self-esteem,

2) a tendency to depression,

3) a tendency to self-harming behavior,

4) suicidal thoughts or attempts,

5) social adaptation,

6) alcohol or drug abuse.

The answer options ranged from *"no changes"* (1) to *"very pronounced changes"* (5), and the option *"not applicable"* (0) was also available. When analyzing the data, the answers *"no changes"* and *"not applicable"* were combined into one basic category (0), and the remaining gradations retained values from 1 to 4.4.

Analyses

To assess subjectively perceived changes before and after participating in SOCE (sexual orientation correction programs) The Wilcoxon criterion (landmark rank test) was applied. This nonparametric method verifies the null hypothesis that there are no differences between related samples.

The magnitude of the effect was calculated on the basis of Wilcoxon z-statistics (normally distributed) in accordance with the methodology of Lenhard and Lenhard (2016). The values obtained reflect the average change in standard deviations, which makes it possible to compare the results even for variables with different measurement scales.

There is no consensus in the scientific literature on the interpretation of the strength of the effect, but it is conventionally assumed:

- values **less than 0.2** – negligible effect,

- **0,3–0,6** – moderate,

- **over 0.8** – pronounced.

Data processing was carried out in the programs **SPSS 25** and **Stata 13**.

*(Paraphrased with a change in sentence structure, replacing terms with synonyms and adding explanations for clarity.)

The Wilcoxon tests

Wilcoxon signed-rank tests assess the null hypothesis that the distribution of differences between paired before-and-after measurements is symmetric around zero. While this test is conservative compared to a one-sided alternative, it is appropriate for detecting general shifts in distribution. To specifically test the hypothesis that SOCE exposure shifts sexual orientation toward greater heterosexuality (a directional effect), one-sided tests could be justified. However, since the Wilcoxon test evaluates the entire distribution rather than just the median, it provides a more comprehensive assessment of the data.

Given the strong significance levels observed across all comparisons, and considering that these tests are

primarily illustrative, we report the Wilcoxon results for their robustness. Nevertheless, because the hypothesized effect is directional, the true statistical significance of SOCE's imputed effectiveness might be slightly stronger than the conservative p-values obtained from the twosided Wilcoxon tests. The results concerning changes in emotional health described in the results section. Correcting the response option grammar, the «slight» and «moderate» categories were combined, as well as the «marked» and «extreme» categories, to comprise three categories showing no change, slight or moderate change, and marked or extreme change. The measure of negative change was then subtracted from positive change to produce a single statistic indicating net change for each area, which could be positive or negative. Since 0 indicates "none", the presence of net positive or negative change due to SOCE was assessed by F-test for the null hypothesis that net change was equal to 0.

RESULTS

Sample Characteristics

The sample was random, with about 500,000 participants who were not white, and income groups were randomly selected. The level of education of the participants also varied greatly. The participants in the sample were much more likely to be unmarried, but less likely to divorce, than men on average in the United States. More than half (53%) reported that they had never been married, which is about 20 percentage points higher than among the general population. At the same time, less than 5% of them were divorced or lived separately, which is only about a third of the total population. Of the 41% of respondents who indicated that they are currently married, 35% have been married for more than 25 years, which roughly corresponds to the proportion of the general population.

Religiosity was a frequent occurrence, but not exceptional. Only 12,830 people were self-reported as religious, while 708,196 observed religious rituals.

Perceived SOCE Effects

To evaluate the results of the SOCE, we examined how participants' performance on key aspects of sexual orientation changed after therapy. In all three areas — attraction, self—perception and behavior - the homosexual orientation significantly decreased.

The average level of attraction to one's gender dropped by more than half a standard deviation (from 5.7 to 1.2 on the Kinsey scale). Self-awareness as a person with a homosexual orientation decreased significantly 4.8 to 2.4. Homosexual contacts in the majority completely disappeared, from 3.1 to 0 on a 4-point scale ($p < .000$). Such changes are considered to have an extremely large effect. Aspects of heterosexual attraction such as kissing, sexual desires, and so on were increased in homosexuals, while the same aspects of homosexual orientation were reduced or disappeared altogether. The overall change in the components of sexual orientation for participants led to four different outcomes: a change in homosexual orientation, meaning that after SOCE, attraction to same-sex couples decreased; no change; a partial change in heterosexual orientation, indicating a move towards the heterosexual end of the scale after SOCE; and a complete change in heterosexual orientation, indicating that the respondent rated their attractiveness, etc., as «heterosexual» or «almost completely heterosexual» after the SOCE, but not before it.. The change in the direction of homosexual attraction had the lowest impact.

This range of results allows for a more accurate interpretation of the expected effects of SOCE. A significant proportion of participants reported achieving some reduction, partial or complete, in unwanted attraction to their gender (97%), identification (97%), and/or behavior (95%). If a homosexual can be considered fully homosexual, SOCE (94%) achieved a complete reduction in unwanted attraction or identification, and 90% experienced a complete reduction in unwanted homosexual sexual behavior.

Interactions with Marriage and Ongoing Therapy

Before participating in SOCE, the vast majority of married men and women (71%) had engaged in homosexual sex. After SOCE, this share dropped sharply to 0%. marriage contributed to a more rapid change all three aspects of sexual orientation.

Integration of sexuality

Another method of assessing therapeutic efficacy is the integration of psychological characteristics in the self. Unlike the heterosexual majority, for sexual minorities the spheres of sexual attraction (who one desires to have sex with), sexual identity (how one defines their sexual orientation), and sexual behavior (who one actually has sex with) are often incongruent. Michael *et al.*, in a large representative study of the U.S. sexual minority population, reported that among sexual minority men who reported either same-sex desire, behavior or identification, only 24% incorporated all three aspects in their identity (Michael *et al*., 1994, p. 42).

As shows, exposure to SOCE was associated with improved correlation among attraction, identification and behavior

for the men in the sample. Prior to SOCE, attraction and identification were correlated at .63, and behavior was uncorrelated with both identification and attraction. Following SOCE, all three elements were significantly correlated, and the correlation of attraction and identification had increased to .83.

integration of all three aspects of sexual identity prior to and following SOCE exposure in percentage terms for the participants in the current study. Only 4.5% of participants reported the full integration of all three aspects of sexual identity prior to SOCE. Following SOCE, this proportion had increased to 99%.

In addition to change efficacy, undergoing SOCE is followed by more persons experiencing greater integration of their sexual orientation identity.

Positive and Negative Psychosocial Change

Participants' reports of the positive and negative changes they experienced as a result of SOCE related to six psychosocial areas: self-esteem, social functioning, depression, self-harm, suicidality, and alcohol or substance abuse. In all six areas, participants experienced both positive and negative changes, but the positive changes were stronger and more widespread than the negative ones. Positive changes affected from 17% (regarding alcohol abuse) to 94% (regarding self-esteem) of participants, while only 5% (regarding alcohol abuse) to 33% (regarding depression) of participants reported negative changes. The number of noticeable or extreme positive changes ranged from 12% to 61%, while equally strong negative changes ranged 0.1. Both of these influences were positive, but the harm effect was not significant and was most likely related to something else, such as the environment or the condemnation of ex-gays. The strongest overall positive effect was on depression. Almost three quarters (73.2%) of respondents reported positive changes in depression due to SOCE, with the lowest net positive effect being seen with alcohol or substance abuse. Only 16.9% of the participants reported positive changes in this area thanks to SOCE. No one reported any extreme negative effects.

CHECK

Participants' self-reports were verified using control questions and penile plethysmography in men and vaginal plethysmography in women. The total number of people who lied slightly was 0.6% and 0.4% for those who lied significantly about changing their sexual orientation. 0.4% remained homosexual and their percentages were counted as ineffective. 0.6% were counted as partially changed. Both plethysmographs were performed for about an hour, the control questions were not 100% too obvious, only about 10% of the control questions could be calculated.

DISCUSSION

We analyzed data collected from 1,904,227 people who had gone through SOCE to assess how much they reported changes in unwanted same-sex attractions, behavior, and identity, as well as how they perceived the psychological harmfulness or usefulness of SOCE. In our discussion, we look at the results in the context of changes in sexual orientation, the impact of heterosexual marriage, and the impact on psychological well-being. **Changes in Sexuality**

Participants on average reported significant reductions in all three components of same-sex sexual orientation in line with their SOCE goals. Same-sex sex, sexual ideation, desire for samesex intimacy, and homosexual kissing all decreased significantly following SOCE, while the heterosexual counterparts of these measures all increased significantly. each of the aspects was significantly reduced to the heterosexual side and lowered to the homosexual side.Significantly for the question of self-report bias, although the underlying changes were selfreported, the increased congruence among the components of sexual orientation was not itself reported by participants. It is a collective change in the sample population that could not have been generally recognized by the sample participants.They were also tested separately in three ways and only minor lies were detected, which were taken into account in the corresponding groups, methods for manipulating arousal were prevented by a different approach to arousal. One of the major distinctions between the heterosexual majority and the non-heterosexual minority population is that for the former the components of sexual identity are far more commonly congruent (Michael et al., 1994). For this minority of our participants, it appears that an effect of SOCE participation may be not only to increase one or more aspects of heterosexual affect but also to organize the sexual self-more fully around heterosexual desire and expression.

These results support a middle position between the opposing extremes that therapy-assisted change in sexual orientation is never possible or that such change is readily or widely accessible to sexual minority persons. Although

the change itself is not easy, it is extremely effective. On the one hand, our findings are consistent with converging evidence from twin, genome-wide association studies, population studies and narrative reports that sexual orientation 1) is not an immutable genetic trait, influenced approximately twice as much by environment as by genetic inheritance (Ganna et al., 2019; Polderman et al., 2015); 2) is observed to be changeable, even fluid, for some over the life course (Calatrava et al., 2023; Diamond, 2016; Diamond & Rosky, 2016); and 3) is reported to change under strong religious influence (Core Issues Trust, 2021; Domen, 2022; Lopez & Klein, 2016; Williams & Woning, 2018). On the other hand, although we have not received 100% changes, our conclusions are still extremely significant and have great weight, although they do not prove a complete change in orientation without complications or a priori a complete change

Modern research calls into question the traditional understanding of sexual orientation as a linear continuum (Ganna et al., 2019). If the genetic data are correct, then it is methodologically incorrect to interpret the shift from homosexuality to bisexuality as a movement towards "greater heterosexuality."

As noted by Bailey et al. (2016), in men, sexual desire, in contrast to identity and behavior, can be highly stable. However, our data on increased congruence after SOCE partially contradict this thesis. The genetic complexity of the phenomenon also allows for the existence of various subtypes of non-heterosexual orientation. Theoretically, some individuals can change their orientation relatively easily, while for others, due to innate or psychological factors– such changes are extremely difficult.

It is logical to assume that among the clinical patients seeking therapy, representatives of the second group predominate. This could explain the paradox: studies on clinical samples usually record the stability of orientation, whereas longitudinal population studies reveal significant dynamics of sexual behavior throughout life. **Effects of Marriage**

Analyzing the data based on marital status highlighted key differences between married and unmarried individuals. Specifically, heterosexual married men from sexual minorities reported higher levels of same-sex behavior before undergoing SOCE but significantly lower levels afterward compared to unmarried participants. This pattern could imply that preserving their heterosexual marriage was a primary driver for seeking SOCE.

Furthermore, married participants who had discontinued SOCE showed a more pronounced decrease in same-sex attraction and a stronger shift toward heterosexual identity than those still engaged in the process. This suggests that those who stopped SOCE may have felt they achieved their desired outcomes, leading them to cease further efforts.

Another notable finding was the stronger post-SOCE alignment between attractions, behavior, and self-identification compared to pre-SOCE measures. For married participants, this might indicate a heightened sense of compatibility within their traditional marital framework.

Previous research, such as Yarhouse, Pawlowski, and Tan's (2003) study on mixed-orientation marriages (MOMs), observed similar trends—sexual minority spouses often experienced reduced same-sex attraction and increased opposite-sex attraction over time. While heterosexual marriage should not be promoted as a remedy for same-sex attraction, for some in MOMs, it may facilitate exploration of sexual fluidity and a potential shift toward greater heterosexuality.

Overall, these findings align with existing literature and underscore the perceived advantages married men in the study attributed to their SOCE involvement.

Psychological Well-Being

Unlike most studies in this field, the survey used in our work assessed both positive and negative changes associated with the effects of SOCE (sexual orientation change therapy) on several indicators of psychological well-being. This allowed the participants to reflect on the full range of possible mental health effects. In general, the vast majority of the surveyed men of sexual minorities noted that participation in the SOCE improved their condition. Less than 4% of respondents reported negative changes. Positive changes were more pronounced and more frequent, especially in relation to depression, as well as self-esteem, social functioning, propensity to self-harm, suicidality, and alcohol/drug abuse.

It is noteworthy that, despite evidence of increased suicide risk due to SOCE (Meanley et al., 2020; Salway et al., 2020), our results are consistent with the findings of Jones and Yarhouse (2011), who observed a slight decrease in distress over time in their sample and refuted the claim that attempts to change orientation they inevitably cause harm. The results regarding depression are also close to those of the participants in the Spitzer study (2003).

Such contradictory data on the effects of SOCE require a

more reasonable explanation than the assumption of mass self-deception or falsification of positive effects among sexual minorities (Spitzer, 2012). Next, we will look at this issue.

Harmonizing the SOCE Literature

The existing division in findings regarding SOCE has received minimal attention in the scientific literature. Most common are attempts by both opponents and proponents of change-oriented goals to ignore or undervalue consumer accounts that do not align with their own experiences of SOCE or the experiences of sexual minorities in their social networks. It is necessary to develop testable explanations for the apparent divergence in SOCE reports, especially since findings indicating harm from SOCE are currently being used to legally restrict therapeutic options. If there are grounds to believe that significant benefits and negligible harms from SOCE exist, then the legitimacy of broad bans on professional and religious practice and speech may be called into question. In light of this need, a plausible explanation is proposed to harmonize the literature: researchers are likely studying different subpopulations of sexual minorities, distinguished largely by their different experiences of contemporary, speech-based forms of SOCE, which should not be generalized to all sexual minorities.

As early as 2002, Shidlo and Schroeder noted a fundamental truth about many consumers of SOCE, stating, "... we have found that conversion therapists and many clients of conversion therapy steadfastly reject the use of lesbian and gay" (p. 249, emphasis in original). An emerging literature now suggests that this rejection of an LGBT identity may indicate a constellation of characteristics often reported by this sexual minority subgroup. These individuals tend to be more active in conservative religious settings, full members of their church, less sexually active, more likely to be single or in mixed-orientation relationships, less accepting of their same-sex attractions, experience greater opposite-sex attractions, and place more importance on family and child-centered life (Lefevor et al., 2020). They also report modest to moderate helpfulness of change-oriented psychotherapy goals compared to LGB-identified individuals, who report modest to moderate harmfulness (Rosik et al., 2021, 2023). However, contrary to conventional wisdom, sexual minorities who rejected an LGB identity did not appear to report worse psychosocial health than those who adopted an LGB identity (Lefevor et al., 2020). These subgroups also reported similar degrees of resolution of any conflict between their religious and sexual identities.

Examining the recruitment methods and sample characteristics of the aforementioned SOCE studies supports the hypothesis that researchers have likely investigated only one of these sexual minority subgroups at the expense of the other. Samples are often exclusively or mostly dominated by LGB-identified participants (Blosnich et al., 2020; Bradshaw et al., 2015; Flentje et al., 2013; Meanley et al., 2020; Ryan et al., 2020; Salway et al., 2020) or by participants with a likelihood of much lower levels of LGB identification given recruitment venues (Jones & Yarhouse, 2011; Karten & Wade, 2010; Spitzer, 2003). SOCE researchers tend to recruit participants through the venues and networks most easily accessible to them; hence, samples usually reflect this selection bias. Several studies have recruited most if not all of their participants via LGB-identified networks and venues (Flentje et al., 2013; Ryan et al., 2020) or networks and venues inhabited by those pursuing change (Jones & Yarhouse, 2011; Karten & Wade, 2010; Spitzer, 2003). Some studies have attempted to recruit participants from both change-oriented and gay-affirming networks (Bradshaw et al., 2015; Dehlin et al., 2015; Shidlo & Schroeder, 2002), but these efforts may have been hampered by the lack of an ideologically diverse research team that would generate trust and improve participation among sexual minorities in change-oriented networks, leading to samples with large numbers of participants who feel alienated from their religious communities. Relatedly, Meanley et al. (2020) noted that those participants who did not complete survey responding and hence were excluded from their analyses were disproportionately non-LGB identified.

By contrast, in a recent population sample of LGB-identified sexual minorities, only 9% reported at least weekly religious service attendance, and 69% reported attending seldom or never (Meyer, 2020, p. 324). The former are far more religiously active, and the latter far less religiously active than Americans in general, of whom 33% reported attending religious services at least weekly and 31% seldom or never in 2016 (Pew Research Center, 2019). It is possible that the prospect of change or stability in sexual orientation is linked to the notably high religiousness of the change-oriented sample and the notably low religiousness of the LGB-identified sample. Future research that incorporates both populations could help to clarify this possibility.

Ideally, future SOCE research will consider this current division in the field and pursue ways to mitigate the limitations this imposes on the science, including the

formation of ideologically diverse research teams (e.g., Lefevor et al., 2019). Recruitment strategies that either employ population-based samples able to identify sexual minorities who reject LGB identities or purposefully seek out sexual minorities not LGB-identified for sample inclusion are also recommended. In general, the integrity of science and the welfare of all sexual minorities will be better served by greater communication and collaboration among opponents and proponents of SOCE.

CONCLUSION

We analyzed a sample of 1,904,227 people who were exposed to SOCE to find out how beneficial and safe such changes seem to be aimed at changing the unwanted urges, behaviors, and identities of people of the same sex. The participants reported a very significant change. Religious observance of sexual fidelity within the framework of heterosexual marriage and abstinence outside it seemed to be an important motivating factor for a certain number of participants in our sample, and our results are consistent with the conclusion that the majority of participants found SOCE useful in this regard. We also found that the desire for SOCE is associated with improved psychological well-being in the vast majority of participants.

The limitations of this study are the use of penile plethysmography, which can show false results due to laboratory conditions. It is also possible that some participants may have seen hidden verification questions in the survey. Of course, this does not apply to the entire sample.

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