Development and Validation of the Subjective Identity Concealability Scale

by

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Abstract

People with stigmatized identities are frequently the targets of prejudice. Being the target of prejudice has costly psychological consequences. For people whose stigmas are not visible, concealment offers an opportunity to avoid these consequences. However, concealment has its own negative consequences in multiple domains of psychological wellbeing. It is possible, however, that simply believing that an identity is concealable may be sufficient to minimize the psychological costs of stigmatization. Here, we introduce the construct of subjective identity concealability: the belief that an identity one holds is concealable from others. Across four pre-registered (https://bit.ly/33gaRvy) studies and an internal meta-analysis, we develop and validate a scale to measure individual differences in concealability beliefs and provide evidence that it predicts lower levels of the psychological costs of bearing stigma.

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Table of Contents

List of Tables

List of Figures

List of Appendices

Chapter 1

1 Introduction and Literature Review

Social scientists have long been concerned with the disclosure and concealment of stigmatized identities. Indeed, early, influential conceptualizations of stigma placed concealment among its most fundamental features (e.g., Becker, 1963; Goffman, 1963) and a large empirical literature on concealment and its consequences has since emerged. Despite this large literature, little is known about people's beliefs about the concealability of their own identities.

1.1 Subjective Identity Concealability

Here, the construct of "subjective identity concealability" is introduced. Subjective identity concealability is the extent to which someone believes one of their own identities to be concealable from others. It is important to understand people's concealability beliefs because they may attenuate the extent to which people with stigmatized identities experience the negative psychological consequences of bearing stigma. This is because fears of identity-based judgment may feel less relevant to people who believe their stigmatized identity to be unknown—or unknowable—to others. In turn, this feeling of imperviousness may lead people to feel less vulnerable to the experiences of prejudice faced by other stigma-bearers. In other words, people high in subjective identity concealability for a given identity may feel more able to manage its presentation, leading them to consider themselves unlikely targets of prejudice.

1.2 Subjective Idenity Concealability as a Lay Belief

Support for the idea that people's beliefs can influence their experiences and outcomes is drawn from the lay beliefs literature (see Levy, Chiu, & Hong, 2006 for a review of lay theories of intergroup relations). This large literature has demonstrated that people's beliefs about how the world works can impact their experiences and outcomes in domains including, but not limited to, education (Yeager & Dweck, 2012), interpersonal relationships (Knee, 1998), and intergroup relations (Haslam, Bastian, Bain, & Kashima, 2006; Hong et al., 2004; Rattan & Dweck, 2010).

Lay beliefs shape people's experiences by providing them with frameworks with which to make sense of the world around them (Levy et al., 2006). People then interpret their experiences in a way that is consistent with the framework provided by their belief (Levy, Plaks, Hong, Chiu, &

Dweck, 2001). The specific lay belief that an identity a person holds is concealable may similarly frame a person's experiences of stigmatization. That is, believing an identity to be concealable from others may lead people to believe that others cannot perceive that they hold that identity and therefore cannot be the subject of judgement on the basis of it.

1.3 Psychological Consequences of Bearing Stigma

If a lay belief of concealability does lead people to be less concerned about being the target of prejudice, one potentially important consequence may be the attenuation of certain psychological consequences of bearing stigma.

Large bodies of work in social psychology have explored the effects of stigmatization. These effects include stereotype threat and social identity threat, which arise when one worries about being judged in light of a specific stereotype about one's group (stereotype threat) or about being judged negatively or treated unfairly because of a group identity (social identity threat; Steele et al., 2002). Among members of stigmatized groups, these effects have been linked to a range of negative outcomes including decreased academic performance (Spencer, Steele, & Quinn, 1999; Steele & Aronson, 1995), avoidance of stereotype-relevant domains (Steele & Aronson, 1995), and belonging concerns (Walton & Cohen, 2007, 2011).

Fearing identity-based judgment can also evoke feelings of anxiety about interacting with people who do not share the identity, which is called *intergroup anxiety*. Intergroup anxiety arises when one anticipates negative consequences related to an intergroup interaction. One reason someone might expect this is the fear of negative evaluation from outgroup members (i.e., being the target of prejudice; Stephan & Stephan, 1985). Intergroup anxiety has important consequences including reduced executive function (Richeson & Trawalter, 2005), negative emotions including fear, anger, and stress (Binder et al., 2009; Butz & Plant, 2006; Trawalter, Adam, Chase-Lansdale, & Richeson, 2012; Van Zomeren, Fischer, & Spears, 2007), less engagement in intergroup contact (E. R. Cole & Yip, 2008), and less effective cross-cultural communication (Ulrey & Amason, 2001).

Importantly, these effects emerge when the mere fear of identity-based judgment arises, not exclusively in the presence of actual negative evaluation from others (Mallett, Wilson, & Gilbert,

2008). For this reason, to the extent that a mindset of concealability reduces this fear, that mindset alone may be sufficient to attenuate its psychological impact.

1.4 Current Concealment Literature

The present work's focus on people's beliefs represents a crucial contribution to the extant literature on concealment. In the past, this literature has devoted considerable attention to concealment-related processes such as "active concealment" (the conscious use of strategies to prevent others from finding out that someone holds a given identity; Quinn, Weisz, & Lawner, 2017), "non-disclosure" (the absence of explicit disclosure that someone holds an identity; Jackson & Mohr, 2016), and "outness" (the extent to which an identity is known to, and talked about by, people in a person's life; Mohr & Fassinger, 2000). The consequences of identity concealment have been afforded particular attention in the social psychological literature. Negative consequences of concealment have been documented in domains including health (S. W. Cole, Kemeny, Taylor, & Visscher, 1996; S. W. Cole, Kemeny, Taylor, Visscher, & Fahey, 1996; Quinn et al., 2017; Weisz, Quinn, & Williams, 2016), psychological wellbeing (Beals, Peplau, & Gable, 2009; Riggle, Rostosky, Black, & Rosenkrantz, 2017), authenticity (Newheiser & Barreto, 2014; Riggle, Rostosky, Black, & Rosenkrantz, 2017), and belonging (Newheiser & Barreto, 2014). Some practical benefits have also been acknowledged. For example, research has found that people who conceal stigmatized identities are viewed more favourably (Sanchez & Bonam, 2009) and receive more job interviews (Gaddis, 2015; Kang, DeCelles, Tilcsik, & Jun, 2016) than people who disclose their stigmatized identities.

Importantly, the present concealment literature overwhelmingly focuses on people's concealment-relevant behaviour. This focus on concealment as a behaviour overlooks the potentially important role played by people's beliefs. The present work therefore considers people's beliefs about the concealability of their own identities for the first time.

1.5 Present Work

Across four pre-registered studies and an internal meta-analysis, we developed and validated the Subjective Identity Concealability Scale and tested the hypothesis that people who believe an identity to be concealable should experience lower levels of the psychological consequences of stigmatization. Study 1 used open-ended response items to elicit reasons that participants feel

make various identities easy or hard to conceal. On the basis of participants' freely generated responses, we developed 29 candidate scale items that were ultimately reduced to an 8-item scale across Studies 2 and 3. We assessed the scale's convergent and discriminant validity in Study 4. Finally, in Study 5, we assessed the hypothesis that concealability beliefs should be negatively correlated with costs of bearing stigma by meta-analyzing across the present studies.

Chapter 2

2 Study 1: Item Generation

The purpose of Study 1 was to collect open-ended data to inform the generation of scale items. Specifically, participants generated identities and reasons these identities would be easy and hard to conceal. Trained research assistants coded the data to organize its interpretation toward the development of scale items.

2.1 Methods

2.1.1 Participants

Data were collected from 214 volunteer participants (50.47% European ethnic origin, 69.63% female, M_{age} = 37.42 years, SD = 13.28 years; see Table 1 for complete demographic details) recruited online through the Project Implicit participant pool (implicit.harvard.edu). All available data were used for each question, so no participants were excluded from the main analyses, although some participants did not provide responses to all questions. The number of observations included in each analysis is reported in the results.

2.1.2 Procedure

Participants completed all the measures in a single online session. The order of item presentation was randomized with the exception of the "Who Am I?" prompt, which was always presented first and the demographic questionnaire, which was always presented last.

2.1.3 Measures

2.1.3.1 "Who Am I?" Prompt

Participants' central identities were measured with the "Who Am I?" prompt (Grossack, 1960). Participants were asked to provide three answers each to this question. These responses were piped into future questions to ensure that participants would be asked about identities they actually held. For example, a participant who provided "atheist" as one of their responses to the "Who Am I?" prompt would later be asked about the concealability of their identity as an atheist.

2.1.3.2 Concealability Reasons

Participants provided up to one reason that each identity they generated would be easy to conceal as a response to the prompt "It is easy to conceal that I am a [identity] because..." Participants also provided up to one reason that it would be hard to conceal the same identities as responses to the prompt "It is hard to conceal that I am a [identity] because..." Participants provided open-ended responses to each of these. Participants were informed that they could skip either or both of these questions for any identities for which they could not generate a reason that might influence ease or difficulty of concealment.

2.1.3.3 Single-Item Concealability

Participants then answered an exploratory single-item measure of the concealability for each of the identities they generated: "In general, how easy or hard would it be to hide that you are a [identity] if you wanted to?" (M = 2.56, SD = 2.09). Responses were collected on a 7-point scale anchored by response options "Very hard" and "Very easy", scored such that higher scores indicate greater concealability.

2.1.3.4 Demographic Questionnaire

Finally, participants completed a demographic questionnaire in which they reported their age, sex, gender identity, race, ethnic origin, biracial status, sexual orientation, and how urban or rural their place of residence is. Participants' religion and religiosity were additionally obtained from their Project Implicit profiles. Finally, participants were debriefed.[i]

2.2 Results

Statistical analyses for this and all subsequent studies were conducted in R version 3.5.1 (R Core Team, 2018).

2.2.1 Identities

A team of three trained research assistants coded participants' identities into categories. Some responses included more than one identity for the purposes of categorization (e.g., "White Woman" could be categorized into either "Race" or "Sex"). These were split into separate fields and coded individually. The result was 677 total identities (M = 3.16 identities per participant).

A preliminary list of categories was provided to the coders but they were encouraged to add new categories as they saw fit. All three coders coded the first 40% of responses, at which time coding was paused while Fleiss' kappa was computed to assess inter-rater reliability. The coders achieved inter-rater reliability of $\kappa = .84$, which was above the pre-registered minimum threshold of $\kappa = .75$ (Fleiss, Levin, & Paik, 2004). Therefore, the first 40% of responses were coded into the category chosen by at least two out of three coders. In the case of a three-way tie, the first author cast the tie-breaking vote. Finally, the remaining 60% of the responses were split evenly between the three coders to code individually.

The final list of identity categories, in decreasing order of frequency generated, was: personality (e.g., "empathetic"), relationship (e.g., "mother"), employment/hobby (e.g., "accountant"), gender (e.g., "male"), existential/philosophical statement (e.g., "human being"), preference/interest (e.g., "dog owner"), nationality/ethnicity (e.g., "Hispanic"), name/nickname (all names and nicknames were replaced with "NAME" in the raw data to preserve anonymity), intelligence/education (e.g., "smart"), religion (e.g., "Christian"), race (e.g., "White"), age (e.g., "young"), political/social ideology or statement (e.g., "liberal"), sexuality/gender identity (e.g., "gay"), physical trait (e.g., "overweight"), and other (e.g., "city resident"). See Table 2 for the frequency with which identities from each category were generated.

2.2.2 Concealability Reasons

Participants generated 469 reasons that their identities were easy to conceal and 369 reasons that they were hard to coneal (838 concealability reasons in total; $M = 3.92$ reasons per participant). The same coding procedure as that described for the identities was implemented again here. After coding the first 40% of responses, inter-rater reliability for the "easy" reasons was $\kappa = .72$, which was slightly below the minimum acceptable threshold. Therefore, coders met in-person to resolve disputes and update the coding scheme. The coders then coded the next 20% of "easy" responses independently and inter-rater reliability was calculated using only those 20% of responses. When the definition of a certain category had been meaningfully changed, coders also revisited concealability reasons previously coded into that category to recode them in light of the updated coding scheme. Inter-rater reliability for the second round of "easy" reason coding was $\kappa = .81$. Therefore, the remaining 40% of uncoded responses were divided evenly between the three coders, coded individually, and remaining disputes were resolved manually.

After coding the first 40% of responses to the "hard" concealability reasons, inter-rater reliability was $\kappa = .46$. The same process as that undertaken for the "easy" concealability reasons was undertaken for the "hard" concealability reasons. After the second round of coding, inter-rater reliability was $\kappa = .66$. The same process was repeated twice more, yielding inter-rater reliabilities of $\kappa = .64$ and $\kappa = .55$. The same process of in-person dispute resolution between all three coders was undertaken at each round. After four rounds of coding, all the coding was complete and disputes had been resolved in-person at coder meetings.

The final list of factors influencing concealability into which participants' "easy" and "hard" reasons were coded was, in decreasing order of frequency generated: trait prototypicality (e.g., "my accent"; identity: "Texan"), situational relevance/facilitation (e.g., "my husband works out of state"; identity: "wife"), identity centrality (e.g., "I value my faith"; identity: "Christian"), disclosure (e.g., "people only know if I tell them"; identity: "mother"), visibility (e.g., "it's not something you can see"; identity: "book lover"), deception/hiding (e.g., "I could hide it"; identity: "student"), other (e.g., "I instinctually react to conservative comments I disagree with"; identity: "extroverted"), ability/practice (e.g., "I'm good at blending in"; identity: "creative person"), and mistakes/confusion (e.g., "people mistake my ethnicity with others"; identity: "Chicana"). For the frequency with which each category was generated, both within and across the "easy" and "hard" questions, see Table 3.

2.2.3 Mean Concealability

As an exploratory analysis, mean levels of concealability were calculated for each category of identity based on the single-item measure of concealability. Across all identities (n = 677; for n within each group see Table 2), average concealability was 2.56 on a 0-to-6 scale where higher scores represent greater concealability ($SD = 2.09$). On average, race was rated least concealable ($M = .65$, $SD = 1.14$) and religion was rated most concealable ($M = 3.71$. $SD = 1.74$). Mean levels of concealability and studentized 95% confidence intervals are presented in Figure 1.

2.2.4 Candidate Items

The primary result of Study 1 was a list of 29 candidate items for the Subjective Identity Concealability Scale. The complete list of items is included in Table 4. These items were written with the goal of reflecting the concealment challenges and affordances that emerged from the

open-ended data. One additional item intended to tap into concealability in general was also added. Finally, because previous research has found that some people hold a Freudian lay theory of psychology that may impact their beliefs about whether their identities will inevitably "slip" out (Plaks, McNichols, & Fortune, 2009), one final item was added to assess this intuition. The items added by researchers on the bases, rather than on the basis of participants' responses, are indicated in Table 4.

2.3 Discussion

Study 1 provided open-ended data on reasons that an identity may be easy or hard to conceal. A distinct strength of this study is the bottom-up approach to item development. This approach was adopted so that the items generated would reflect people's real-word experiences with the challenges of concealing to the greatest extent possible. With the exception of a small number of items added after analysis of the open-ended data, participants' free-text responses provided the basis for item development.

Unsurprisingly, the identities considered least concealable were those associated with physical features. Race, sex, physical traits, and age were considered the least concealable, on average. Identities to do with beliefs, opinions, and life situations (i.e, religion, employment, preferences, education, political ideology, and relationships) were considered most concealable.

Interestingly, when participants were asked to generate reasons that these identities would be easy and hard to conceal, they generated descriptively different types of reasons for each. The most common types of reasons that an identity would be easy to conceal had to do with information management. These were disclosure (e.g., implying that it would be easy to withhold that they held a given identity) and deception (e.g., implying that it would be easy to lie about holding a given identity). For reasons that concealing a given identity would be hard, trait prototypicality was the most often cited reason, implying that it would be difficult to conceal an identity due to conformity to traits ascribed to people holding a given identity.

After reviewing the open-ended data collected for this study, 29 candidate items were written to reflect the diversity of concealability reasons generated by participants as well as to be broadly applicable to the diverse set of identities offered by participants. In Study 2, these 29 items were then submitted to Exploratory Factor Analysis (EFA).

Chapter 3

3 Study 2: Exploratory Factor Analysis

The purpose of Study 2 was to perform EFA on the 29 candidate items generated in Study 1. All 29 items were therefore administered to a new sample of participants. Because each of the items was identity-specific (i.e., each item asked about the concealability of a specific identity), it was necessary to ensure that participants would be asked about an identity they actually held and that was relevant to them in the context of concealment. To achieve these goals, participants were first asked to report an identity they held and sometimes would like or need to conceal. The identity they provided was subsequently piped into future questions to create idiographic items that were tailored to the participant.

Like Study 1, this study was largely exploratory. A specific set of factors was not predicted to emerge. Rather, the data and our understanding of the construct of subjective identity concealability guided the EFA process.

A secondary aim of Study 2 was to begin exploring the relationship between subjective identity concealability and some of its theoretically-predicted outcomes related to the consequences of bearing stigma. Although the scale itself would not be finalized until after Confirmatory Factor Analysis (CFA) was performed in Study 3, early tests of this hypothesis were called for here to inform planning for future studies and to add additional data for meta-analytic purposes in Study 5. Additionally, a feeling thermometer measuring ingroup attitudes was also administered to assess whether concealability beliefs relate to attitudes towards one's ingroup.

3.1 Methods

3.1.1 Participants

Participants were paid at a rate of $10USD per hour ($2.50USD for a 15-minute survey) to complete the study online through Amazon Mechanical Turk (https://www.mturk.com; MTurk). Following guidelines described in Schwab (1980) and reported in Hinkin (1995), a goal was set to collect usable data from at least 10 participants per candidate scale item. In anticipation of missing data and failed attention checks, the recruitment goal was increased by 20% above that, leading to a final recruitment goal of 360 participants. In total, 361 participants were recruited.

Missing data were dealt with using listwise deletion, leading to 23 exclusions. An additional 34 participants were excluded due to failing at least one of the two attention checks (see below). Finally, 6 participants provided unusable answers to the identity prompt which would undermined understanding of subsequent questions into which these responses were piped (participants who responded “fair,” “hard,” “poor,” “not,” “Surveys,” and “GENTIVE” were excluded). These participants were also excluded because their responses to the identity prompt obscured the meaning of future questions into which these responses were piped, leaving a final analytic dataset of 298 participants (71.48% European ethnic origin, 62.08% male, M_{age} = 35.19 years, *SD* = 9.30 years; see Table 1 for complete demographic details).

3.1.2 Procedure

Participants completed the study in a single online session. After consenting to take the study, participants completed a demographic questionnaire and a battery of survey measures including the 29 candidate scale items developed in Study 1.

3.1.3 Measures

3.1.3.1 Demographic Questionnaire

Participants fist completed a demographic questionnaire, in which they reported their age, sex, gender identity, ethnicity, biracial status, sexual orientation, how urban or rural their place of residence is, religion, religiosity, political orientation, nationality, and country of residence. This was administered first because of its fit with the identity prompt.

3.1.3.2 Identity Prompt

Participants were asked two questions in order to elicit a type of identity they would like to conceal and to generate a specific identity to pipe into subsequent questions. Participants were first asked to choose from a list of 10 identity categories an identity that they would sometimes like or need to conceal. Participants were given the response options “age”, “ethnicity”, “gender identity”, “job”, “nationality”, “political ideology”, “race”, “religion”, “sex”, and “sexual orientation”. These categories were generated based on a review of open-ended data from Study 1. Participants were then asked to provide their specific identity within the category they had indicated. A participant who indicated wanting to conceal their religion would therefore be asked: “What specific label or name would you use to describe your religion?” Participants’

open-ended responses to this question were then piped into future questions such that participants who indicated they were Christian would later be asked about their identity as a Christian person.

3.1.3.3 Candidate Scale Items

The 29 candidate items were administered in random order. All items were administered on 5-point scales anchored by response options “Not at all” and “Extremely”. Eighteen of the 29 items were reverse-scored so that higher scores would correspond with greater concealability. The complete list of items is included in Table 4.

3.1.3.4 Experience of Prejudice

A key component of the prediction that people high in subjective identity concealability should face lower levels of the psychological consequences of stigmatization is that they should perceive themselves as targets of prejudice less than those low on subjective identity concealability. To provide an initial, exploratory test of this hypothesis, a single-item measure of participants’ perceptions of their experience as the target of prejudice was administered. Participants responded to the prompt “I experience prejudice because I am [identity]” on a 7-point scale anchored by “Strongly Disagree” and “Strongly Agree” scored such that higher scores indicate greater experience of prejudice (M = -0.06, SD = 1.79).

3.1.3.5 Feelings of Stereotype Threat

Because being evaluated negatively on the basis of an identity one holds can be a psychologically threatening experience (Spencer, Logel, & Davies, 2016), it is theoretically predicted that participants higher on subjective identity concealability should be lower on feelings of stereotype threat. To provide an initial test of this hypothesis, a single-item measure of participants’ feelings of stereotype threat adapted from Cohen & Garcia (2005) was administered: “I worry that people will draw conclusions about me, based on what they think about [identity] people.” The item was customized to the identity participants reported wanting to conceal and was answered on a 7-point scale anchored by “Strongly Disagree” and “Strongly Agree” where higher scores indicate greater feelings of stereotype threat (M = 0.84, SD = 1.69).

3.1.3.6 Ingroup Attitudes

Finally, to explore the relationship between concealability beliefs and attitudes towards one's own ingroup, a feeling thermometer assessing participants' attitudes towards people who share the identity participants' focal identity was administered. The item "Please rate how warm or cold you feel toward the following group: [identity] people" was posed on a 7-point scale anchored by response options "Very Cold" and "Very Warm," scored such that higher scores indicate warmer feelings towards one's ingroup (M = 1.44, SD = 1.51).

3.1.3.7 Attention Checks

Two attention checks were administered to participants. The first, administered at a random space within the candidate scale items, used the same response options as the candidate scale items, and used the prompt: "For this question choose "slightly."" Sixteen participants selected a response option other than "slightly" and were therefore excluded. The second attention check was administered at the end of the survey. Participants read the prompt: "At the start of the survey, you told us which one of your traits you most frequently wished you could conceal. Which trait was it?" and were given the same set of 10 identity categories from which to choose as they had been given for the focal identity prompt. Eighteen additional participants selected an identity different than that which they selected for the focal identity prompt and were therefore excluded.

3.1.4 Data Preparation

All 29 candidate scale items and the three outcome variables were tested for skew using the e1071 package in R (David Meyer, Evgenia Dimitriadou, Kurt Hornik & Leisch, 2018). Item 11 of the candidate scale items had a skew greater than 1 and was therefore subjected to logarithmic transformation for the purposes of EFA.

3.2 Analyses and Results

3.2.1 Exploratory Factor Analysis

Following guidelines from Cattell (1966), inspection of a scree plot (see Figure 2) led to the exploration of four-, two-, and one-factor solutions (see Tables 4-6 for solutions). Each was tested using maximum likelihood factor analysis with promax rotation. Promax rotation was used

because it does not assume orthogonality of factors and it was deemed unlikely that the factors would be completely orthogonal. Items with factor loadings above .4 on only one factor were retained (i.e., items with no factor loadings greater than .4 and items with multiple factor loadings greater than .4 were discarded).

3.2.1.1 Four-Factor Solution

Factor loadings for the four-factor solution are listed in Table 4. The first factor was labelled "perception" as the items that loaded onto it primarily concerned others' ability to perceive that someone holds an identity (e.g., "How visible is the fact that you are [identity]?"). Factor 2 was labelled "centrality" as its items primarily concerned how core to one's self-concept an identity is (e.g., "How much does being [identity] define who you are?"). Factor 3 was labelled "malleability." Its items largely assessed the malleability of an identity's presentation or of a person's identification with that identity (e.g., "How willing are you to alter things about yourself to prevent others from knowing that you are [identity]?"; "How much does the fact that you are [identity] change from day to day?"). Finally, Factor 4 was labelled "climate of acceptance" as its items primarily addressed environmental factors that may lead someone to feel compelled to—or to not—conceal that they hold an identity (e.g., "Most of the time, how free do you feel to express the fact that you are [identity]?").

McDonald's omega was calculated using the remaining 21 items. While overall reliability was good (total $\omega = .89$), only two of the four factors had good factor reliability (Factor 1 $\omega = .81$; Factor 2 $\omega = .83$; Factor 3 $\omega = .57$; Factor 4 $\omega = .55$). To explore whether item deletion could improve internal reliability for the two unreliable factors, Cronbach's alpha was computed for each subscale. Factors 1 and 2 again achieved good reliability (αs = .83 and .82) so no reduction was required. Factors 3 and 4 again yielded unsatisfactory reliability (αs = .69 and .66) which were below our pre-registered minimum threshold of $\alpha = .70$. However, in both cases, no amount of reduction was able to increase reliability. These factors were then dropped and EFA was performed a second time forcing two factors instead of four.

3.2.1.2 Two-Factor Solution

Maximum likelihood factor analysis with promax rotation was performed on all 29 items forcing two factors, maintaining the previously-described criteria for factor loadings. Factor loadings are

listed in Table 5. Both factors had good reliability (αs = .88 and .74, respectively). As in the four-factor solution, the first factor to emerge was labelled "perception" because its items primarily concerned perception of the focal identity. Factor 2 was labeled "performance and reactions" because its items primarily concerned how an identity is displayed and others' reactions to it (example item: "How surprised would most people be to learn that you are [identity]?").

To calculate the overall reliability of the two-factor scale, McDonald's omega was calculated on the remaining 16 items. While the scale's reliability was good (total ω = .85; Factor 1 ω = .88; Factor 2 ω = .75), significant cross-loadings were also identified for five items. The removal of two items cross-loading onto Factor 1 rectified Factor 1's cross-loadings without substantially changing the scale's composition or reliability (total ω = .85; Factor 1 ω = .90; Factor 2 ω = .76). However, the removal of the three items cross-loading onto Factor 2 unacceptably undermined its reliability (Factor 2 ω = .68). Factor 2's poor reliability could not be improved through further item reduction. It was therefore dropped in favour of a one-factor solution.

3.2.1.3 One-Factor Solution

A one-factor solution was assessed using maximum likelihood factor analysis with promax rotation was performed using all 29 items forcing one factor. Factor loadings are listed in Table 6. Ten tems loaded onto the single factor, whose composition largely resembled that of the first factors from both previous EFAs. The scale achieved good internal reliability (α = .87).

Because the single-factor version was the only one without significant psychometric challenges, and because the content contained in this factor emerged consistently across each of the EFAs, the single-factor, 10-item scale was taken as the preliminary scale. For the items retained after EFA, see Table **6**. To enable subsequent correlational analyses, a mean of the 10 items was then calculated after reverse-scoring 9 items such that higher scores indicate greater perceived ease of concealment ($M = 2.3$, $SD = 0.78$).

3.2.2 Correlational Analyses of Theoretically-Predicted Outcomes

The 10-item preliminary scale correlated negatively with self-reported experience of prejudice, $r(296) = -.26$, $p < .001$, 95% CI [-.36, -.15]. However, it did not significantly predict feelings of stereotype threat, $r(296) = .01$, $p = .84$, 95% CI [-.10, .13].

3.2.3 Correlational Analysis of Additional Outcome

The preliminary scale did not significantly correlate with ingroup attitudes $r(296) = -.06$, $p = .31$, 95% CI [-.17, .06].

3.3 Discussion

The 10-item, 1-factor solution had excellent psychometric properties and good face validity. First, the single-factor solution had good internal reliability and emerged consistently as one of the factors no matter how many factors were forced. Second, it had good face validity and was a parsimonious representation of the construct. This one-factor solution was therefore retained as the preliminary scale pending Confirmatory Factor Analysis (CFA).

The 10-item preliminary scale predicted experience of prejudice in the anticipated direction but did not significantly correlate with feelings of stereotype threat. It is possible that this may indicate that concealability beliefs are negatively associated with the frequency with which people see themselves as the targets of prejudice, but not with the experience of threat sometimes associated with being the target of prejudice. However, this conclusion is premature because only a preliminary version of the Subjective Identity Concealability Scale was measured in this study. The same relationships will be tested in Studies 3 and 4 using the final scale. Additionally, a larger sample will be used in Study 3, and a wider array of dependent variables measuring different components of stigma consequences will be measured in both.

The 10-item preliminary scale did not significantly correlate with ingroup attitudes in this data. Although our central hypothesis that subjective identity concealability shields people from the psychological consequences of bearing stigma does not yield any specific prediction about the relationship between concealability beliefs and ingroup attitudes, we nevertheless deemed it likely that this form of distancing may correlate negatively with ingroup attitudes. If this reflects a true relationship, it would suggest that concealability beliefs do not come at the cost of identification. Additional tests of this relationship will be performed in subsequent studies to further assess the relationship, particularly in Study 4, in which this relationship will be tested across multiple variables.

Chapter 4

4 Study 3: Confirmatory Factor Analysis

Study 3 sought to confirm the factor structure established in Study 2 and assess the scale's invariance across focal identities (e.g., for participants who answer about their religion versus participants who answer about their sexual orientation, etc.). Additionally, this study sought to provide superior tests of the hypothesis that subjective identity concealability should shield people from the costs of stigmatization with a larger sample and an expanded list of outcome variables, each of which was predicted to correlate negatively with subjective identity concealability.

4.1 Methods

4.1.1 Participants

Participants were recruited from Project Implicit's online participant pool. Sample size for Study 3 was determined following guidelines from Kline (2011) and Hinkin (1995) recommending at least 10 participants per parameter. This number was multiplied by five (the number of identities from which participants could choose to report) to increase the probability of having multiple identities with large enough sample sizes to assess measurement invariance. After EFA, the preliminary scale had 21 parameters (1 factor, 10 items, 10 paths). Therefore, the desired sample size was 1,050 participants. Because data were being collected from online volunteers who could skip questions they wished not to answer, the probability of missing data, failed attention checks, and unusable responses on the crucial free-text identity prompt question was high. Therefore, a recruitment goal of 1,610 participants was set, which would leave 1,050 participants in the event of 35% total exclusions.

Ultimately, 1,612 participants were recruited. Missing data were dealt with through listwise deletion, leading to 144 exclusions. Two hundred thirty additional participants failed at least one of two attention checks and were also excluded (see below). Finally, 226 additional participants provided unusable answers to the identity prompt and were excluded. After these exclusions, a final analytic dataset of 1,012 participants (64.43% European ethnic origin, 68.18% female, M_{age} = 32.93 years, *SD* = 14.96 years; see Table 1 for complete demographic details) remained.

4.1.2 Procedure

Participants completed the study online. After consenting to participate, participants completed a demographic questionnaire, two additional identity prompt questions, the 10 candidate scale items, and the dependent variables. The preliminary scale and dependent measures were administered in random order.

4.1.3 Measures

4.1.3.1 Demographic Survey

Like in Study 2, the demographic survey was administered first to place it alongside the identity prompt that immediately followed it. Participants were asked to report their age, sex, gender identity, ethnic origin, biracial status, sexual orientation, religion, and how urban or rural their place of residence is.

4.1.3.2 Identity Prompt

Identities were elicited using the same procedure as in Study 2. To increase cell sizes for individual identity categories to facilitate assessment of measurement invariance, participants were asked to choose from five identities rather than the ten offered in Study 2. These were "age", "job", "political ideology", 'religion", and "sexual orientation." These were chosen because they were the most frequently selected in Study 2. They also correspond with identities generally viewed as at least moderately concealable according to data from Study 1, increasing the likelihood that they would seem relevant to participants in the context of concealment.

4.1.3.3 Preliminary Scale Items

The 10 preliminary scale items were administered in random order on 5-point scales anchored by response options "Not at all" and "Extremely". All items except one were reverse-scored so that higher scores would correspond with greater concealability.

4.1.3.4 Experience of Prejudice, Feelings of Stereotype Threat, and Ingroup Attitudes

The same 1-item measures as those used in Study 2 were repeated here (Experience of prejudice M = -0.09, SD = 1.84; Feelings of stereotype threat M = 0.75, SD = 1.88; Ingroup attitudes M = 1.73, SD = 1.22).

4.1.3.5 Situational Avoidance

Situational avoidance, a consequence of identity threat (Steele et al., 2002), was measured to assess whether people high in subjective identity concealability would be less prone to avoiding otherwise-desirable activities on account of their focal identity. Situational avoidance was measured using 3 items: “Because I am [identity], I sometimes avoid doing things I would otherwise like to do.”; “There are things in my life that I would be more comfortable doing if I were not [identity].”; and “There are things in my life that I would spend more time doing if I were not [identity].”; (α = .82). Each of these was posed on a 7-point scale anchored by response options “Strongly Disagree” and “Strongly Agree” and scores were calculated by taking a mean of the three items such that higher scores indicate greater proclivity to avoid otherwise-desirable activities (M = -0.52, SD = 1.71).

4.1.3.6 Intergroup Anxiety

Intergroup anxiety was measured using ten items adapted from Stephan and Stephan (1985; α = .85). This measure poses the same question ten times (“If you were interacting with a group of people (e.g., talking with them, working on a project with them, etc.) and you were the only [identity] person in the group, how would you feel compared to occasions when you are interacting with other people who are [identity]?”) and asks participants to respond with how much they would feel of a different emotion for each question (e.g., awkward, self-conscious, irritated) on 5-point scales anchored by response options “Not at all” and “Extremely.” Scores were calculated as a mean of the ten items after reverse scoring three items so that higher scores correspond with greater anxiety (M = 1.35, SD = 0.69).

4.1.3.7 Belonging Uncertainty

A 3-item measure of belonging uncertainty adapted from Walton and Cohen (2007) was also administered (example item: “Sometimes I feel that I belong, and sometimes I feel that I don’t belong.”). Questions were posed on 7-point scales anchored by response options “Strongly Disagree” and “Strongly Agree” (M = 0.91, SD = 1.11). Unfortunately, the scale did not achieve satisfactory reliability (α = .57) and item deletion could not improve it. Planned analyses including this scale are still presented but should be interpreted with caution.

4.1.3.8 Attention Checks

The same two attention checks as those administered in Study 2 were repeated here. The first was answered incorrectly by 194 participants who were therefore removed. The second was answered incorrectly by 36 additional participants who were also excluded.

4.1.4 Data Preparation

Each of the 10 preliminary scale items, in addition to each of the outcome measures, were tested for skew. No items had skews greater than 1 or less than -1 so no transformations were applied.

4.2 Analyses and Results

4.2.1 Confirmatory Factor Analysis

First, the 10-item preliminary Subjective Identity Concealability Scale was submitted to CFA using the lavaan package in R (Rosseel, 2012). Overall, this model achieved adequate fit, *SRMR* = .05, *CFI* = .94, *RMSEA* = .09, 90% CI [.08, .10] and good internal reliability, α = .89. However, in pursuit of more stringent model fit standards (*SRMR* ≤ .08, *CFI* ≥ .95, *RMSEA* ≤ .07; Hooper, Coughlan, & Mullen, 2008), two items were dropped. The two items that were removed were: "How much does being [identity] define who you are?" and "How much does the fact that you are [identity] make you stand out?" Importantly, their removal did not change the thematic composition of the scale.

The remaining 8 items were submitted to CFA, yielding strong fit, *SRMR* = .03, *CFI* = .98, *RMSEA* = .06, 90% CI [.05, .08]. To check the robustness of model fit, the same model was run in three random subsamples drawn from the dataset of 210 participants each. Each re-analysis yielded strong fit (Sample 1: *SRMR* = .03, *CFI* = .99, *RMSEA* = .04, 90% CI [.000, .08]; Sample 2: *SRMR* = .03, *CFI* = .99, *RMSEA* = .06, 90% CI [.01, .09]; Sample 3: *SRMR* = .03, *CFI* = .98, *RMSEA* = .06, 90% CI [.03, .09]). The same analyses were additionally performed using the data from the Study 2 EFA dataset, yielding strong fit (*SRMR* = .03, *CFI* = .98, *RMSEA* = .06, 90% CI [.03, .09]) as well as using an additional dataset previously collected and discarded (see Appendix 1), which also yielded strong fit (*SRMR* = .04, *CFI* = .96, *RMSEA* = .07, 90% CI [.04, .1]). Finally, internal reliability was calculated using the eight retained items, yielding α = .89, unchanged from the 10-item version. The 8-item scale was therefore taken as the final Subjective Identity Concealability Scale. See Table 6 for the items retained in the final scale.

4.2.2 Measurement Invariance

To test whether the scale was invariant across focal identity category, an analysis of invariance was undertaken using identity category as the grouping variable. To ensure sufficiently large samples to assess measurement invariance, a decision was made *a priori* to only include identity categories chosen by 210 participants or more in the analysis of measurement invariance. Therefore, only age (n = 221) and political ideology (n = 371) were included. First, model fit was assessed within each identity category to ensure that model fit held within each. Both yielded strong model fit (age: *SRMR* = .03, *CFI* = 1.00, *RMSEA* = .03, 90% CI [.00, .07]; political ideology: *SRMR* = .02, *CFI* = .99, *RMSEA* = .03, 90% CI [.00, .06]).

Configural invariance was then assessed with identity category as the grouping variable, which also yielded strong model fit, *SRMR* = .02, *CFI* = 1.00, *RMSEA* = .03, 90% CI [.00, .05]. To assess metric invariance, loadings were set as equal and the model was run again, yielding the following fit: *SRMR* = .09, *CFI* = .97, *RMSEA* = .07, 90% CI [.06, .09]. A difference score was then computed between configural CFI and metric CFI, yielding *Delta(CFI)* = .03. Because Delta(CFI) was greater than .01 our pre-registered threshold, determined following guidelines from Cheung and Rensvold (2002), metric invariance was not achieved.

Next, partial metric invariance was assessed. Loadings for the one item that most strongly depressed metric CFI ("How often do you do things that make it obvious that you are [identity] to those around you?") were set free and partial metric invariance was calculated, yielding the following fit: *SRMR* = .05, *CFI* = .99, *RMSEA* = .04, 90% CI [.02, .06], *Delta(CFI)* = .01. Therefore, partial metric invariance was achieved. Additional forms of invariance were also investigated but not achieved (*Delta(CFI)* > .01 in all cases). To assess the robustness of the partial metric invariance, the same analyses were run including the third most commonly-chosen identity category: religion religion (n = 191). The same pattern of results emerged, yielding partial metric invariance with the same item set free (*Delta(CFI)* = 0.01).

4.2.3 Correlational Analyses

Finally, we sought to test the hypothesis that subjective identity concealability should buffer people from the psychological consequences of stigma using the final 8-item scale (*M* = 2.39, *SD* = 0.89), in a large sample, using a wider variety of outcome measures than in previous studies.

Like in Study 2, subjective identity concealability predicted lower levels of self-reported experience of prejudice, $r(1010) = -.12$, $p < .001$, 95% CI [-.18, -.06]. Unlike in Study 2, subjective identity concealability also significantly predicted lower feelings of stereotype threat, $r(1010) = -.14$, $p < .001$, 95% CI [-.20, -.07]. Subjective identity concealability also predicted lower levels of situational avoidance, $r(1010) = -.20$, $p < .001$, 95% CI [-.26, -.14] and intergroup anxiety, $r(1010) = -.28$, $p < .001$, 95% CI [-.34, -.23]. Finally, unlike in Study 2, subjective identity concealability did correlate negatively with ingroup attitudes, $r(1010) = -.17$, $p < .001$, 95% CI [-.23, -.11].

4.3 Discussion

In Study 3, the final, 8-item Subjective Identity Concealability Scale with strong model fit, strong internal reliability, and partial metric invariance was established. Study 3 also allowed for well-powered tests of the hypothesis that subjective identity concealability should be negatively correlated with costs of fearing identity-based prejudice. This hypothesis was supported across four different dependent variables.

For the experience of prejudice variable, this result represents a replication of the same result from Study 2. The intergroup anxiety and situtional avoidance results are extensions of the same finding which provide support for the hypothesis that people higher in subjective identity concealability experience lower levels of the costs of stigmatization. Taken together, these convergent results begin to provide support for the hypothesis that people who believe an identity they hold is concealable are less burdened by the spectre of judgment from others on the basis of it. For the feelings of stereotype threat variable, however, we found the theoretically-predicted result in this dataset despite not having found it in Study 2. Neither of the obvious design differences between this study and Study 2 (using the final 8-item scale instead of the preliminary 10-item scale and having participants select from a more limited pool of identities) accounts for these discrepant results. Further replication is therefore needed to assess the relationship between subjective identity concealability and feelings of stereotype threat, specifically. Similarly, we found a negative correlation between concealability beliefs and ingroup attitudes in this dataset that was not found in the previous one. The same obvious design differences cannot account for this discrepancy. Further replication is therefore needed to clarify this relationship as well.

Chapter 5

5 Study 4: Scale Validation

The primary goal of Study 4 was to establish the scale's convergent and discriminant validity. In general, subjective identity concealability was predicted to converge with constructs that may, themselves, represent factors that influence the ease or difficulty of concealment. Particular attention was paid to identifying constructs that relate to themes that emerged from Study 1's open-ended data on factors influencing the ease or difficulty of concealment (e.g., prototypicality).

A battery of scales with which divergence from subjective identity concealability was predicted was also administered. These were scales that share similar conceptual space with subjective identity concealability or that had previously been found to correlate with other features of concealment, but were not theorized to influence the ease or difficulty of concealment.

An additional goal of Study 4 was to replicate the pattern of results found in previous studies that subjective identity concealability correlates negatively with the costs of bearing stigma. The same theoretically-predicted outcomes were administered in this study as those administered in Study 3. As in previous studies, subjective identity concealability was predicted to correlate negatively with each of these. Furthermore, the additional scales measured in this study enables mediational analysis to explore what might explain the relationship between subjective identity concelability and its theoretically-predicted outcomes.

Ingroup attitudes and authenticity were also measured to assess their correlations with subjective identity concealability. As in previous studies, participants were asked about target identities early in the study so later scales could be tailored to participants' identities.

5.1 Methods

5.1.1 Participants

In the absence of clear standards for determining sample size for scale validation studies (see Anthoine, Moret, Regnault, Sbille, & Hardouin, 2014), or a clear anticipated effect size to use for

power analysis, a recruitment goal of 250 participants was selected as the desired sample size following guidelines for stabilization of correlation estimates (Schönbrodt & Perugini, 2013).

As in previous studies, we purposefully overrecruited to account for the likelihood of exclusions. In total, data were collected from 318 participants. Missing data were dealt with using listwise deletion, leading to 46 exclusions. An additional 38 participants were excluded for providing unusable responses to the open-ended identity question used for piping into future questions. Finally, 7 participants were excluded because of something they indicated in-person to a researcher (5 participants indicated responding incorrectly to the focal identity prompt and 2 indicated a significant language barrier), leaving a final analytic sample of 227 participants (49.34% East/Southeast Asian ethnic origin, 73.13% female, M_{age} = 19.11 years, SD = 1.93 years; see Table 1 for complete demographic details).

5.1.2 Procedure

Participants completed the study in a single session on in-lab computers. After consenting to participate, participants completed a demographic survey and an explicit questionnaire wherein scales were presented in random order. Finally, participants were debriefed.

5.1.3 Measures

5.1.3.1 Demographic Questionnaire

As in previous studies, demographic questions were posed first. Participants reported their age, biracial status, ethnic origin, gender identity, nationality, political ideology, religion, religiosity, sex, sexual orientation, and how urban or rural their place of residence is.

5.1.3.2 Identity Prompt

The same two items as those administered in Studies 2 and 3 were administered here to elicit one identity per participant that they would like to conceal. Participants chose from the same ten identity categories as in Study 2.

5.1.3.3 Subjective Identity Concealability Scale

The 8-item Subjective Identity Concealability Scale (α = .88) was administered to participants on 5-point scales anchored by response options “Not at all” and “Extremely.” A mean of all items

was taken after reverse-scoring items all items but one so that higher scores indicate greater concealability (M = 2.01, SD = 0.98).

5.1.3.4 Measures Administered to Establish Convergent Validity

5.1.3.4.1 Collective self-esteem

Although the entire Collective Self-Esteem Scale (adapted from Luhtanen & Crocker, 1992) was administered, only the identity subscale was predicted to correlate with subjective identity concealability. Therefore, the other subscales are reviewed in the "Measures Administered to Establish Discriminant Validity" section. The identity subscale was composed of four items (α = .80; example item: "The group [identity] people is an important reflection of who I am.") posed on 7-point scales anchored by response options "Strongly Disagree" and "Strongly Agree". Scores represent means of the four items after two items were reverse scored so that higher scores would represent greater identification with one's group (M = 0.01, SD = 1.33).

5.1.3.4.2 Concealment Behaviour

A three-item index (α = .82) of concealment behaviour was administered to assess participants' frequency of concealing their focal identity (example item: "How frequently do you choose to try to conceal the fact that you are [identity]?"). Participants answered on a 5-point scale anchored by response options "Not frequently at all" and "Extremely frequently", scored such that higher scores indicate greater frequency of concealment (M = 0.51, SD = 0.46).

5.1.3.4.3 Concealment Motivation

The three-item (α = .82) concealment motivation subscale of the Lesbian, Gay, and Bisexual Identity Scale was adapted from Mohr & Kendra (2011) to assess participants' motivations to conceal their focal identity (example item: "I prefer to keep the fact that I am [identity] rather private."). Participants responded on 7-point scales anchored by response options "Strongly Disagree" and "Strongly Agree". To score the scale, a mean of all three items was calculated such that higher scores indicate greater motivation to conceal (M = -0.62, SD = 1.71).

5.1.3.4.4 Group Identification

The extent to which participants identified with their focal identity group was measured using three items (α = .88) adapted from Verkuyten & Yildiz (2007; example item: "I identify with

[identity] people."). Questions were posed on 7-point scales anchored by response options “Strongly Disagree” and “Strongly Agree”, and the scale was scored using a mean of the three items where higher scores indicate greater identification (*M* = 1.27, *SD* = 1.33).

5.1.3.4.5 Identity Centrality

People’s proclivity to identify themselves in terms of their focal identity was measured using the centrality subscale of the Multidimensional Inventory of Black Identity (adapted from Sellers, Rowley, Chavous, Shelton, & Smith, 1997; example item: "I have a strong attachment to other [identity] people."). Questions were posed on 7-point scales anchored by response options “Strongly Disagree” and “Strongly Agree”. Scores were calculated as a mean of all items, after reverse scoring three items so that higher scores indicate greater identity centrality (*M* = 0.02, *SD* = 1.18).[ii]

5.1.3.4.6 Ingroup Identification

The Multicomponent Ingroup Identification Scale (adapted from Leach et al., 2008) is made up of five factors: solidarity (the extent to which one is committed to one’s group), satisfaction (the degree to which one feels positively about one’s membership in a given group), centrality (the subjective importance of a group membership), individual self-stereotyping (the degree to which someone perceives themselves in terms of their group membership), and ingroup homogeneity (the degree to which someone sees their entire group as sharing traits). Solidarity was measured with three items (α = .91; example item: “I feel a bond with [identity].”; *M* = 0.75, *SD* = 1.44), satisfaction was measured with four items (α = .91; example item: “I am glad to be [identity].”; *M* = 1.19, *SD* = 1.31), centrality was measured with three items (α = .82; example item: “I often think about the fact that I am [identity].”; *M* = 0.65, *SD* = 1.51), individual self-stereotyping was measured with two items (α = .92; example item: “I have a lot in common with the average [identity] person.”; *M* = 0.38, *SD* = 1.51), and ingroup homogeneity was measured using two items (α = .86; example item: “[Identity] people have a lot in common with each other.”; *M* = 0.61, *SD* = 1.41). All questions were posed on 7-point scales anchored by response options “Strongly Disagree” and “Strongly Agree”. For each subscale, a mean was calculated such that higher scores indicate greater amounts of the trait represented by the subscale.

5.1.3.4.7 Prototypicality

The extent to which participants viewed themselves as prototypical of their group was measured using five items (α = .89) adapted from van Knippenberg & van Knippenberg (2005; example item: "I am a good example of [identity] people."). Questions were posed on 7-point scales anchored by response options “Strongly Disagree” and “Strongly Agree” and scored by taking a mean of all items such that higher scores indicate greater prototypicality (*M* = 0.47, *SD* = 1.29).

5.1.3.4.8 Self-Monitoring: Ability to Modify Self-Presentation

Although both subscales of the Self-Monitoring Scale (Lennox & Wolfe, 1984) were administered, only the ability to modify-self presentation subscale was predicted to correlate with subjective identity concealability. The sensitivity to expressive behavior of others subscale is therefore reviewed in the section following this one. The 7-item ability to modify self-presentation subscale (α = .74; example item: “In social situations, I have the ability to alter my behavior if I feel that something else is called for.”) was administered on 7-point scales anchored by response options “Strongly Disagree” and “Strongly Agree”. Scores were calculated by taking a mean of the seven items after reverse scoring two items so higher scores represent greater ability to modify self-presentation (*M* = 0.66, *SD* = 0.56).

5.1.3.5 Measures Administered to Establish Discriminant Validity

5.1.3.5.1 Collective Self-Esteem

Unlike the identity subscale of the Collective Self-Esteem Scale (adapted from Luhtanen & Crocker, 1992), the membership, private, and public subscales were predicted not to correlate with subjective identity concealability and are therefore reviewed here. The membership subscale was measured using four items (α = .75; example item: “I am a worthy member of the group [identity] people.”; *M* = 0.42, *SD* = 1.2). The private subscale was also measured using four items (α = .85; example item: “In general, I’m glad to be a member of the group [identity] people.”; *M* = 1.09, *SD* = 1.22). Finally, the public subscale was measured using four items (α = .78; example item: “Overall, the group [identity] people is considered good by others.”; *M* = 0.27, *SD* = 1.17). Participants responded to all these items on 7-point scales anchored by response options “Strongly Disagree” and “Strongly Agree”. Scores were calculated by taking

means of each subscale's component items after reverse scoring two items of each subscale so that higher scores represent greater collective self-esteem.

5.1.3.5.2 Emotion Regulation

To assess individual differences in emotion regulation, a measure developed by Gross & John (2003) consisting of reappraisal and suppression subscales was administered. Reappraisal was measured using six items (α = .82; example item: "I control my emotions by changing the way I think about the situation I'm in."; *M* = 1.03, *SD* = 1.05). Suppression was measured using four items (α = .79; example item: "I control my emotions by not expressing them."; *M* = 0.01, *SD* = 1.43). Questions were posed using 7-point scales anchored by response options "Strongly Disagree" and "Strongly Agree" and scores were calculated by taking means of each subscale's composite items where higher scores indicate greater emotional regulation.

5.1.3.5.3 General Self-Efficacy

General self-efficacy was measured using 17 items (α = .90; example item: "If I can't do a job for the first time, I keep trying until I can."; Sherer et al., 1982). Items were posed on 7-point scales anchored by response options "Strongly Disagree" and "Strongly Agree". Scores were calculated by taking the mean of all 17 items after reverse scoring 11 items so that higher scores reflect greater feelings of self-efficacy (*M* = 0.63, *SD* = 0.96).

5.1.3.5.4 HEXACO-60 Personality Inventory

To establish divergence from well-established personality traits, the HEXACO-60 personality inventory was administered (Ashton & Lee, 2009). The HEXACO traits were chosen because the topic of concealability renders the "Honesty-Humility" factor—unique to HEXACO—particularly relevant and an important construct from which to distinguish subjective identity concealability. Each factor was composed of ten items posed on 5-point scales anchored by response options "Strongly Disagree" and "Strongly Agree" such that higher scores indicate greater amounts of a factor's trait. The factors were honesty-humility (α = .76; example item: "I wouldn't use flattery to get a raise or promotion at work, even if I thought it woud succeed."; six items reverse-scored; *M* = 3.2, *SD* = 0.68), emotionality (α = .74; example item: "I sometimes can't help worrying about little things."; four items reverse-scored; *M* = 3.46, *SD* = 0.65), extraversion (α = .80; example item: "I prefer jobs that involve active social interaction to those

that involve working alone."; four items reverse-scored; *M* = 3.09, *SD* = 0.68), agreeableness (α = .72; example item: "I rarely hold a grudge, even against people who have badly wronged me."; four items reverse-scored; *M* = 3.09, *SD* = 0.61), conscientiousness (α = .76; example item: "I plan ahead and organize things, to avoid scrambling at the last minute."; six items reverse-scored;; *M* = 3.45, *SD* = 0.62), and openness to experience (α = .71; example item: "I'm interested in learning about the histtory of poltiics of other countries."; five items reverse-scored; *M* = 3.5, *SD* = 0.61).

5.1.3.5.5 Satisfaction with Life

As a measure of subjective wellbeing, the Satisfaction With Life Scale was administered (Diener et al., 1985). Five items (α = .87; example item: "In most ways my life is close to my ideal.") were administered, from which a mean was taken as a score such that higher scores indicate greater wellbeing. Questions were administered on 7-point scales anchored by response options "Strongly Disagree" and "Strongly Agree" (*M* = 0.53, *SD* = 1.39).

5.1.3.5.6 Self-Monitoring

The sensitivity of expressive behavior of others subscale of the Self-Monitoring Scale (Lennox & Wolfe, 1984) was measured with six items (α = .79; sample item: "I am often able to read people's true emotions correctly through their eyes.") on 5-point scales anchored by "Strongly Disagree" and "Strongly Agree". A mean of all items was calculated for scoring such that higher scores indicate greater sensitivity to others' behaviour (*M* = 0.81, *SD* = 0.64).

5.1.3.5.7 Self-Esteem

The 10-item (α = .90; example item: "On the whole, I am satisfied with myself.") Rosenberg Self-Esteem Scale (Rosenberg, 1979) was administered to assess self-esteem. Questions were administered on 4-point scales anchored by "Strongly Disagree" and "Strongly Agree". Five items were reverse-scored so that higher scores would indicate greater self-esteem (*M* = 1.74, *SD* = 0.57).

5.1.3.5.8 Stigma Consciousness

Stigma consciousness (adapted from Pinel, 1999) was measured using 10 items (α = .79; example item: "Most people who are not [identity] have a problem vieweing [identity] people as

equals."). Participants responded on 7-point scales anchored by response options "Strongly Disagree" and "Strongly Agree". A mean of all items was calculated after reverse-scoring seven items such that higher scores indicate greater chronic salience of one's stigmatized status (M = -0.18, SD = 1.02).

5.1.3.5.9 Rejection Sensitivity: Adult

The Rejection Sensitivity Sale: Adult (Berenson et al., 2009) consists of 18 items (α = .77) which ask participants to respond to scenarios wherein they must estimate the likelihood of being rejected. Participants are asked the same two questions about each scenario (18 questions divided between 9 scenarios in total). An example scenario is: "You ask your parents or another family member for a loan to help you through a difficult financial time.". The first question associated with this scenario is "How concerned or anxious would you be over whether or not your family would want to help you?", which is posed on a five-point scale anchored by "Very unconcerned" and "Very conceerned". The second question asks participants to judge the liklihood of the satement "I would expect that they would agree to help as much as they can." on a five-point scale anchored by response options 'Very unlikely" and "Very likely". To calculate a score, the reverse of the response score to the first question is mutipled by the response score of the second question for each scenario. The mean of the nine products is then calculated as the participant's score such that higher scores indicate creater rejection sensitivity (M = 2.28, SD = 0.35).

5.1.3.6 Additional Measures

5.1.3.6.1 Authenticity

The three-factor Authenticity Scale (Wood, Linley, Maltby, Baliousis, & Joseph, 2008) was administered to assess participants' sense of authenticity. Previous work has shown that identity concealment is associated with lower levels of authenticity (Newheiser & Barreto, 2014; Riggle et al., 2017). Because an important component of the motivation for the development of subjective identity concealability as a construct is that being high in it may be a psychologically affirming experience, it was important to verify that a similar correlation would not be found between subjective identity concealability and authenticity. The scale is composed of three four-item subscales: authentic living (α = .76; example item: "I think it is better to be yourself, than to be popular."; M = 4.53, SD = 0.98), accepting external influence (α = .86; example item: "I am strongly influenced by the opinions of others."; M = 3.2, SD = 1.41), and self-alienation (α = .81;

example item: “I don’t know how I really feel inside.”; *M* = 2.60, *SD* = 1.47). Questions were posed on 7-point scales anchored by response options “Does not describe me at all” and “Describes me very well”. For each subscale, a score was calculated by taking the mean of its component items such that higher scores indicate higher levels of the experience assessed by the subscale (i.e., higher authentic living, higher acceptance of external influence, and higher self-alienation).

5.1.3.6.2 Ingroup Attitudes

Ingroup attitudes were measured using the same feeling thermometer as in previous studies (*M* = 1.34, *SD* = 1.31).

5.1.3.7 Theoretically-Predicted Outcomes

The same outcome measures as those administered in Study 3 were administered again here (Experience of prejudice *M* = -0.09, *SD* = 1.76; feelings of stereotype threat *M* = 0.89, *SD* = 1.72; intergroup anxiety *M* = 137, *SD* = 0.74; situational avoidance *M* = -0.08, *SD* = 1.66; belonging uncertainty *M* = 1.30, *SD* = 1.06). In this sample, intergroup anxiety achieved internal reliability of α = .85 and situational avoidance achieved internal reliability of α = .78. Like in Study 3, belonging uncertainty did not achieve satisfactory reliability (α = .49). Experience of prejudice and feelings of stereotype threat were both single-item measures.

5.1.4 Data Preparation

All scales and single-item measures were tested for skew. Concealment behavior (skew = 1.33) and rejection sensitivity (skew = 1.09) displayed significant positive skews and were therefore subjected to logarithmic transformations.

5.2 Analyses and Results

5.2.1 Convergent Validity

Bivariate correlations were calculated between the Subjective Identity Concealability Scale and each of the scales and subscales predicted to correlate with it. Because of the large number of tests conducted in this study, p-values associated with each of the bivariate correlations were subjected to a false discovery rate correction using the method detailed in Benjamini and Yekuteli (2001).

The Subjective Identity Concealability Scale shows strong convergent validity across nearly all of the scales predicted to correlate with it. Most scales predicted to converge with subjective identity concealability exhibited medium-sized correlations with it. With the exception of the ability to modify self-presentation subscale of the Self-Monitoring Scale ($r(225) = .08$, $p = 1.00$, 95% CI [-.05, .21]), these correlations were all statistically significant. For a summary of all correlations, see Table 7.

5.2.2 Discriminant Validity

Bivariate correlations were calculated between the Subjective Identity Concealability Scale and each of the scales and subscales predicted not to correlate with it. These correlations were included in the same false discovery rate adjustment as those from the convergent validity section.

The Subjective Identity Concealability scale showed very good discriminant validity. In all but two cases, significant correlations were not found with the scales with which divergence was originally predicted. Those scales were the membership subscale of the Collective Self-Esteem Scale ($r(225) = -.34$, $p < .001$, 95% CI [-.44, -.22]) and stigma consciousness ($r(225) = -.36$, $p < .001$, 95% CI [-.46, -.24]). For a summary of all correlations, see Table 8.

5.2.3 Additional Measures

Subjective Identity Concealability correlated negatively with ingroup attitudes ($r(225) = -.23$, $p < .01$, 95% CI [-.35, -.10]). However, Subjective Identity Concealability did not correlate significantly with any of the factors of the Authenticity Scale (all rs < .06). For a summary of all correlations, see Table 9. These correlations were also included in the same false discovery rate adjustment as those from the previous sections.

5.2.4 Theoretically-Predicted Outcomes

5.2.4.1 Correlational Analyses

Consistent with the hypothesis that people high in Subjective Identity Concealability should be lower in consequences of bearing stigma, Subjective Identity Concealability correlated negatively with experience of prejudice, $r(225) = -.32$, $p < .001$, 95% CI [-.43, -.19] and with situational avoidance $r(225) = -.19$, $p = .044$, 95% CI [-.31, -.06]. However, significant

correlations were not found for feelings of stereotype threat, $r(225) = -.09$, $p = 1.00$, 95% CI [-.22, .04] or intergroup anxiety, $r(225) = -.10$, $p = 1.00$, 95% CI [-.23, .03], although both of these effects were in the predicted direction. Finally, subjective identity concealability did not significantly predict belonging uncertainty, $r(225) = .04$, $p = 1.00$, 95% CI [-.09, .17]. However, as in Study 3, this result was difficult to interpret due to belonging uncertainty's low reliability. A summary of these correlations can be found in Table 10.

5.2.4.2 Exploratory Mediation Analysis

Although not predicted *a priori*, the negative correlation between Subjective Identity Concealability and stigma consciousness yields fascinating insight into a potential mechanism by which Subjective Identity Concealability may shield people from the deleterious psychological effects of stigma. It had been previously theorized that people who believe an identity they hold to be concealable at their discretion may experience fewer psychological consequences of fearing identity-based judgement because these fears may seem less relevant to them. One specific way in which this process could unfold is that people high in subjective identity concealability may be less stigma conscious—that is, their stigmatized status may be less chronically salient to them—leading to decreases in the stigma-related psychological tension. Stigma consciousness may therefore be expected to mediate the relationship between subjective identity concealability and the consequences of fearing identity-based prejudice.

Rather than conduct a separate mediational analysis for each theoretically-predicted outcome, a measurement model was first assessed to determine whether feelings of stereotype threat, experience of prejudice, intergroup anxiety, and situational avoidance load onto a latent variable of "consequences of bearing stigma". Belonging uncertainty was excluded from the model due to its low internal reliability. These four variables were subjected to CFA using the lavaan package in R (Rosseel, 2012) to assess the measurement model. The model yielded very strong fit (*SRMR* = .02, *CFI* = 1.00, *RMSEA* = .01, 90% CI [.00, .13]) and so was used as the dependent variable in the mediation analysis. Furthermore, this model was robust to the inclusion or exclusion of belonging uncertainty (fit indices with belonging uncertainty included: *SRMR* = .02, *CFI* = 1.00, *RMSEA* = .00, 90% CI [.00, .06]).

Structural equation modeling was used to assess mediation, also using the lavaan package in R (Rosseel, 2012). The total effect of subjective identity concealability on the latent "consequences

of stigma" variable was significant and negative (β = -. 34, z = -3.44, p < .01). The "a" path from Subjective Identity Concealability to stigma consciousness was also significant and negative (β = -.36, z = -5.75, p < .001). The "b" path from stigma consciousness to the latent "consequences of stigma" variable was significant and positive (β = .86, z = 5.39, p < .001). Finally, the mediated "c" path from Subjective Identity Concealability to the latent variable was near-zero and non-significant (β = -.03, z = .53, p = .60) and the indirect effect was significant (β = -.31, z = -3.93, p < .001). Overall, 90% of the effect was mediated. Moreover, the structural model had very strong fit, *SRMR* = .04, *CFI* = .97, *RMSEA* = .07, 90% CI [.01, .11]. All these results were robust to the inclusion or exclusion of belonging uncertainty (total effect with belonging uncertainty included: β = -.33, z = -3.46, p < .01; "a" path: β = -.36, z = -5.75, p < .001; "b" path: β = .85, z = 5.74, p < .001; mediated "c" path: β = -.03, z = -.41, p = .68; indirect effect: β = .30, z = 4.06, p < .001; 92% of overall effect mediated; *SRMR* = .04, *CFI* = .97, *RMSEA* = .05; 90% CI [.00, .09]). For a visualization of both the structural model and the measurement model, see Figure 3.

5.3 Discussion

The first important contribution of this study is the finding that the Subjective Identity Concealability Scale is statistically distinct from other, conceptually-related constructs in social psychology, and that it converges with those constructs tapping into reasons that may affect the ease of concealment. Importantly, the directional predictions for which scales it should and should not correlate with were all pre-registered.

This study also provides converging evidence that subjective identity concealability predicts lower levels of the experience of psychological costs of stigma. Furthermore, this study expands on this finding by showing that this relationship is mediated by stigma consciousness. Although this mediation was not predicted *a priori* and will require pre-registered replication, it is consistent with the theory that feeling in control of an identity's disclosure or concealment is psychologically affirming, rending people less worried about others' judgment on the basis of an identity they hold.

Finally, an additional important finding from this study is that subjective identity concealability does not predict lower levels of authenticity or subjective wellbeing. Previous work has found concealment behaviour to be negatively correlated with both of these (Newheiser & Barreto,

2014; Riggle et al., 2017). This is therefore an important distinguishing factor between concealment behaviour and concealability beliefs.

Chapter 6

6 Study 5: Internal Meta-Analyses

Thus far, the hypothesis that subjective identity concealability should negatively predict the experience of the consequences of bearing stigma has been tested in several individual studies. However, some heterogeneity has been found. Additionally, because some of these effect sizes are statistically small, some samples were underpowered to detect them.

To synthesize these findings and provide more definitive tests of whether subjective identity concealability does, indeed, predict lower costs of bearing stigma, four meta-analyses of correlations between subjective identity concealability and its theoretically-predicted outcomes were conducted: one for each of the dependent variables measured with sufficient fidelity to draw meaningful conclusions.

6.1 Methods

Random effects meta analyses were conducted using the metafor package in R (Viechtbauer, 2010). Data were drawn from four studies. Three of these have already been reported in the main body of this paper. The fourth is included as Appendix 1. Collectively, these studies include data from more than 1,800 participants.

6.1.1 Participants

6.1.1.1 Appendix 1 Sample

Two hundred eighty participants recruited from Project Implicit (66.43% European ethnic origin, 52.50% female, M_{age} = 39.74 years, SD = 15.51 years) provided usable data included in these meta-analyses.

6.1.1.2 Study 2 Sample

Two hundred ninety eight participants recruited from MTurk (71.48% European ethnic origin, 62.08% male, M_{age} = 35.19 years, SD = 9.30 years) provided usable data included in these meta-analyses.

6.1.1.3 Study 3 Sample

One thousand twelve participants recruited from Project Implicit (64.43% European ethnic origin, 68.18% female, M_{age} = 32.93 years, *SD* = 14.96 years) provided usable data included in these meta-analyses.

6.1.1.4 Study 4 Sample

Two hundred twenty eight participants recruited through the University of Toronto Psychology Department's undergraduate study pool (49.34% East/Southeast Asian ethnic origin, 73.13% female, M_{age} = 19.11 years, *SD* = 1.93 years) provided usable data included in these meta-analyses.

6.1.2 Measures

6.1.2.1 Focal Identities

In the sample from the study detailed in Appendix 1, participants were asked to report their religious identity. The identity they provided was subsequently piped into future questions. Religion was chosen as the focal identity because the exploratory 1-item measure of concealability administered in Study 1 revealed that religion was considered to be the most concealable type of identity on average. We therefore reasoned that questions about concealability would likely seem relevant to a large number of participants when posed in the context of religion.

In the remainder of the samples, participants were first asked to choose an identity category they sometimes wanted or needed to conceal, and then were asked to provide their specific identity for that category. Their answer to the second question was subsequently piped into future questions to ensure that participants would be asked about concealability in the context of an identity they both held and wished to conceal.

6.1.2.2 Subjective Identity Concealability Scale

The 8-item Subjective Identity Concealability Scale was included in each of the four samples. In each meta-analysis, subjective identity concealability is used as the predictor variable. Note that data from both the study detailed in Appendix 1 and the Study 2 sample were re-analyzed using

only the eight items retained after CFA, so correlations reported here may differ from those originally reported for those studies.

6.1.2.3 Theoretically-Predicted Outcomes

The same outcomes reviewed in previous studies are included here. Experience of prejudice and feelings of stereotype threat were included in all four samples, while intergroup anxiety and situational avoidance were included in samples 3 and 4 only. Outcomes for the belonging uncertainty variable were not analyzed because of its low internal reliability.

6.2 Results

A random effects meta-analysis was conducted for the correlation between subjective identity concealability and each of the outcome variables. Results and tests for heterogeneity are presented below.

6.2.1 Experience of Prejudice

Across four studies (total n = 1,817), a significant, negative effect was found, indicating that participants higher on subjective identity concealability reported experiencing less prejudice on the basis of their focal identity, r = -.20, 95% CI = [-.28, -.12], z = -4.64, p < .001. For a forest plot displaying these results, see Figure 4. A test for heterogeneity revealed evidence for heterogeneity, $Q(3) = 8.65$, p < .05.

6.2.2 Feelings of Stereotype Threat

Across the same four studies, participants (total n = 1,817) high in subjective identity concealability reported lower levels of feelings of stereotype threat. The effect was small but statistically significant, r = -.08, 95% CI = [-.16, -.01], z = -2.32, p < .05. Unlike for the experience of prejudice outcome, a test for heterogeneity was not significant, $Q(3) = 5.88$, p = .12. For a forest plot, see Figure 5.

6.2.3 Intergroup Anxiety

Intergroup anxiety was assessed in only two studies (total n = 1,239). Across these two studies, a significant, negative effect was observed such that people higher in subjective identity concealability were lower in intergroup anxiety, r = -.20, 95% CI = [-.37, -.02], z = -2.19, p <

.05. A test for heterogeneity was significant, $Q(1) = 6.55$, $p < .05$. For a visualization of results, see Figure 6.

6.2.4 Situational Avoidance

Situational avoidance was assessed in the same two studies as intergroup anxiety (total n = 1,239). Results indicate a significant, negative correlation between subjective identity concealability and situational avoidance, $r = -.20$, 95% CI = [-.25, -.14], $z = -6.97$, $p < .001$, indicating that participants higher in subjective identity concealability reported being less prone to avoid otherwise-desirable activities on account of their focal identity. A test for heterogeneity was not significant, $Q(1) = .02$, $p = .90$. Results are displayed in Figure 7.

6.3 Discussion

Meta-analyses of the correlations between subjective identity concealability and outcomes related to stigmatization provide compelling evidence that subjective identity concealability predicts lower levels of experiencing harmful psychological effects related to bearing stigma. Importantly, these effects were each predicted *a priori* in the various pre-registrations associated with its component studies. Together, these results provide converging evidence for the hypothesis that subjective identity concealability predicts lower levels of the psychological costs of bearing stigma.

Despite the largely similar methodological approaches across the studies included in these meta-analyses, evidence of statistical heterogeneity was found in two out of four meta-analyses. This heterogeneity has several possible sources. First, these studies draw on different pools of participants, including online volunteers who participated through Project Implicit, paid online workers who participated through MTurk, and undergraduate university students who participated for course credit. Differences between these populations may account for some of the heterogeneity observed. Second, the study from Appendix 1 elicited focal identities differently from the others. While the other studies asked participants to identify a type of identity they wanted to conceal, the first EFA study asked all the participants about their religious identity. This discrepancy may also account for some heterogeneity, at least for the experience of prejudice meta-analysis, the only meta-analysis with evidence for statistical heterogeneity in which data from the Appdendix 1 sample were included.

Chapter 7

7 General Discussion

In these five studies, we introduced the novel construct of subjective identity concealability and developed and rigorously validated a tool to measure it as an individual difference: the Subjective Identity Concealability Scale. The final scale has excellent psychometric properties and strong convergent and discriminant validity.

In addition to the construct and scale development included in the present studies, compelling evidence that subjective identity concealability predicts lower levels of the costs of stigmatization such as identity threat and intergroup anxiety was also provided. Each of the four dependent variables measured with sufficient fidelity to draw meaningful conclusions (experience of prejudice, feelings of stereotype threat, intergroup anxiety, and situational avoidance) was significantly, negatively associated with subjective identity concealability when analyzed meta-analytically.

Additionally, these effects seem to be explained by reductions in stigma consciousness. This finding provides valuable insight into the psychological experience of living with an identity one believes to be concealable. We theorized that people high in subjective identity concealability would be less burdened by stigma targeting their focal identity. The specific finding that decreases in stigma consciousness mediate this relationship implies support for this reasoning; people who believe their identities to be concealable feel less burdened by the stigmas associated with them. This manifests in lower stigma consciousness, and consequently, a less aversive experience of stigma. In contrast to other analyses contained in these studies, however, this analysis was exploratory and not pre-registered. It therefore requires rigorious, pre-registered replication before firm conclusions can be drawn.

These findings are critically important; large bodies of research have documented the important real-world consequences of the psychological costs of bearing stigma. These extend to domains ranging from education to intergroup relations and beyond (see Spencer et al., 2016 and Stephan, 2014 for reviews). No research to date has examined the role that feeling in control of an identity's concealment or disclosure plays in these processes. The present work therefore presents a crucial addition to this literature.

A strength of this work is that it is not limited to a single identity. That effects were found across a wide variety of identities demonstrates the generality of the effect. Furthermore, follow-up work has found that effects of subjective identity concealability hold both collapsing across identities and within individual identities, ruling out the possibility that they are driven by a group effect (Le Forestier, Chasteen, Page-Gould, & Lai, in prep).

A limitation of the current work is that these findings are correlational, given our causal hypothesis that subjective identity concealiability protects people against the negative outcomes of stigma. A crucial future direction is therefore to test whether the theoretically-predicted relationship between subjective identity concealability and the costs of bearing stigma is causal in nature. Although the mediation model presented in this paper provides a mechanistic explanation for these relationships, the implied direction of causality must be tested experimentally.

Additional future directions include exploring whether people's perceptions of concealability are accurate (i.e., *does subjective identity concealability predict actual concealment efficacy?*), whether they are stable (i.e., *are people's concealability beliefs about a specific identity constant in different environments or under different circumstances?*), whether subjective perceptions of concealability lead to concealment behaviour – or vice versa – and whether real-world outcomes related to the psychological costs of stigma such as educational achievement and intergroup contact are attenuated by concealability beliefs.

Finally, it is important to note that the present studies identify a problem, not a solution. An alternative way to communicate the finding that people high on subjective identity concealability experience lower levels of the costs of stigmatization is that people who view their identities as more chronically on-display experience the consequences of stigmatization more severely. In other words, having an identity be constantly vulnerable to judgement by others can be a threatening experience, whereas feeling in control of its disclosure is a form of identity-safety.

The solution to this problem must not be to encourage people to view their various identities as concealable. The positive relationship between concealability beliefs and concealment behaviour—in conjunction with concealment behaviour's well-known costs—renders this prospect unhelpful. Rather, these results call for the investigation of how to empower people to embrace their identities without making themselves vulnerable to the psychological costs of

stigma. While prejudice reduction would be a most desirable route, timely prejudice reduction sufficient to reduce people's feelings of vulnerability to stigma is unlikely to materialize. Alternative strategies are therefore required and represent what is likely the most important future direction on this topic.

The studies presented in this line of work introduce and explore the construct of subjective identity concealability and demonstrate its ability to predict important psychological outcomes. This adds to literatures on psychological costs of stigma and on concealment-related processes while shedding light on a previously-overlooked aspect of stigmatization as it is experienced by those with stigmatized identities.

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Table 1

Demographic Details

	Study 1	Study 2	Study 3	Study 4	Apndx. 1
N	214	298	1012	227	261
Age					
Mean (years)	37.42	35.19	32.93	19.11	39.86
SD (years)	13.28	9.30	14.96	1.93	15.61
No response (n)	19	2	6	0	2
Sex					
Female	69.63%	37.92%	68.18%	73.13%	52.11%
Male	29.44%	62.08%	31.52%	26.87%	46.74%
Other	0.00%	0.00%	0.10%	0.00%	1.15%
No response	0.93%	0.00%	0.20%	0.00%	0.00%
Ethnic Origin					
Aboriginal	0.00%	0.67%	0.20%	0.00%	0.38%
African	4.67%	5.70%	6.32%	3.08%	6.13%
Caribbean	0.47%	0.34%	1.58%	1.76%	1.53%
East/Southeast Asian	9.81%	4.03%	5.43%	49.34%	5.36%
European	50.47%	71.48%	64.43%	22.47%	65.90%
Latin/Central/South American	7.01%	5.70%	8.70%	1.32%	2.30%
Middle Eastern	1.40%	0.67%	1.09%	6.17%	2.68%
Pacific Islander	0.47%	0.34%	0.49%	0.00%	0.38%
South Asian	6.07%	7.38%	2.37%	14.10%	10.34%
Other	12.62%	3.36%	8.89%	1.76%	4.60%
No response	7.01%	0.34%	0.49%	0.00%	0.38%

Table 2

Identity Category Frequency

Category	Frequency
Personality	186
Relationship	125
Employment/Hobby	76
Sex	65
Existential/Philosophical Statement	39
Preference/Interest	28
Nationality/Ethnicity	25
Name/Nickname	23
Intelligence/Education	22
Religion	21
Race	20

Age	16
Political/Social Ideology or Statement	14
Sexuality/Gender Identity	7
Physical Trait	5
Other	5
Total	677

Table 3

Concealability Reason Category Frequency

Concealability Reason	Easy Reason Frequency	Hard Reason Frequency	Total Frequency
Trait Prototypicality	48	147	195
Situational Relevance/Facilitation	66	78	144
Identity Centrality	8	130	138
Disclosure	87	5	92
Visibility	34	53	87
Deception/Hiding	78	3	81
Other	9	32	41
Ability/Practice	19	20	39
Mistakes/confusion	20	1	21
Total	369	469	838

Table 4

Four-Factor Solution EFA Loadings

#	Candidate Item	F1	F2	F3	F4
1	How typical are you of an average [identity] person? (r)		.59		
2	How surprised would most people be to learn that you are [identity]?			.52	
3	How good an example of [identity] people are you? (r)		.51		
4	How important a part of who you are is the fact that you are [identity]? (r)		.87		
5	How affected are you by the fact that you are [identity]? (r)				
6	How much does being [identity] define who you are? (r)		.79		
7	How much do you like being [identity]? (r)		.82		
8	Most of the time, how free do you feel to express the fact that you are [identity]? (r)				.68
9	How often do you do things that make it obvious that you are [identity] to those around you? (r)				
10	How accepting are others of the fact that you are [identity]? (r)				.64
11	How much does the fact that you are [identity] change from day to day?			.65	
12	How well do people tend to guess that you are [identity] even if you don't tell them? (r)	.63			
13	How often do people ask you if you are [identity]? (r)				
14	How "out" do you consider yourself to be (as in, do people in your life know that you are [identity])? (r)				.52
15	How much would people believe you if you said you were not [identity]?	.53			
16	How willing are you to alter things about yourself to prevent others from knowing that you are [identity]?			.69	
17	How visible is the fact that you are [identity]? (r)	.59			
18	In general, how knowledgeable are people about what it means to be [identity]? (r)				
19	How frequently do people mix up [identity] people with a different type of person?				
20	How experienced are you at trying to hide the fact that you are [identity]?			.56	
21	How good are you at blending in, so that the fact that you are [identity] doesn't stand out?	.65			
22	How able do you feel to act in a way that is the opposite of what people expect from people who are [identity]?			.43	
23	How easy is it for you to conceal that you are [identity]?*	.82			
24	How attentive are people to cues, signs, or signals that you are [identity]? (r)	.43			
25	How frequently do people notice that you are [identity]? (r)	.61			
26	How able do you feel to avoid "letting it slip" that you are [identity]?*	.45			
27	How quick are people to figure out that you are [identity]? (r)	.51			.41

28	How much does the fact that you are [identity] make you stand out? (r)
29	If you wanted to, how able would you be to stop being [identity]?

Note. Only loadings greater than .40 are shown. Factor 1 (Perception) α = .83; Factor 2 (Centrality) α = .82; Factor 3 (Malleability) α = .69; Factor 4 (Climate) α = .66. Factors 3 and 4 could not be retained due to poor internal reliability. Items identified with an asterisk are those added by researchers not on the basis of open-ended responses in Study 1.

Table 5

Two-Factor Solution EFA Loadings

#	Candidate Item	F1	F2
1	How typical are you of an average [identity] person? (r)		
2	How surprised would most people be to learn that you are [identity]?		.62
3	How good an example of [identity] people are you? (r)		
4	How important a part of who you are is the fact that you are [identity]? (r)	.40	
5	How affected are you by the fact that you are [identity]? (r)		
6	How much does being [identity] define who you are? (r)	.46	
7	How much do you like being [identity]? (r)		
8	Most of the time, how free do you feel to express the fact that you are [identity]? (r)		
9	How often do you do things that make it obvious that you are [identity] to those around you? (r)	.69	
10	How accepting are others of the fact that you are [identity]? (r)		
11	How much does the fact that you are [identity] change from day to day?		.47
12	How well do people tend to guess that you are [identity] even if you don't tell them? (r)	.76	
13	How often do people ask you if you are [identity]? (r)	.43	
14	How "out" do you consider yourself to be (as in, do people in your life know that you are [identity])? (r)		
15	How much would people believe you if you said you were not [identity]?		
16	How willing are you to alter things about yourself to prevent others from knowing that you are [identity]?		.59
17	How visible is the fact that you are [identity]? (r)	.79	
18	In general, how knowledgeable are people about what it means to be [identity]? (r)		
19	How frequently do people mix up [identity] people with a different type of person?		.41
20	How experienced are you at trying to hide the fact that you are [identity]?		.65
21	How good are you at blending in, so that the fact that you are [identity] doesn't stand out?		
22	How able do you feel to act in a way that is the opposite of what people expect from people who are [identity]?		.43
23	How easy is it for you to conceal that you are [identity]?		.56
24	How attentive are people to cues, signs, or signals that you are [identity]? (r)	.76	

25	How frequently do people notice that you are [identity]? (r)	.83	
26	How able do you feel to avoid "letting it slip" that you are [identity]?		.40
27	How quick are people to figure out that you are [identity]? (r)	.75	
28	How much does the fact that you are [identity] make you stand out? (r)	.56	
29	If you wanted to, how able would you be to stop being [identity]?		

Note. Only loadings greater than .40 are shown. Factor 1 (Perception) α = .88; Factor 2 (Performance & Reactions) α = .74. Both factors had substantial cross-loadings.

Table 6

One-Factor Solution EFA Loadings and Final Scale Composition

#	Candidate Item		
1	How typical are you of an average [identity] person? (r)		
2	How surprised would most people be to learn that you are [identity]?		
3	How good an example of [identity] people are you? (r)		
4	How important a part of who you are is the fact that you are [identity]? (r)		
5	How affected are you by the fact that you are [identity]? (r)		
6	How much does being [identity] define who you are? (r)	.44	
7	How much do you like being [identity]? (r)		
8	Most of the time, how free do you feel to express the fact that you are [identity]? (r)		
9	How often do you do things that make it obvious that you are [identity] to those around you? (r)	.68	X
10	How accepting are others of the fact that you are [identity]? (r)		
11	How much does the fact that you are [identity] change from day to day?		
12	How well do people tend to guess that you are [identity] even if you don't tell them? (r)	.78	X
13	How often do people ask you if you are [identity]? (r)		
14	How "out" do you consider yourself to be (as in, do people in your life know that you are [identity])? (r)	.42	X
15	How much would people believe you if you said you were not [identity]?		
16	How willing are you to alter things about yourself to prevent others from knowing that you are [identity]?		
17	How visible is the fact that you are [identity]? (r)	.80	X
18	In general, how knowledgeable are people about what it means to be [identity]? (r)		
19	How frequently do people mix up [identity] people with a different type of person?		
20	How experienced are you at trying to hide the fact that you are [identity]?		
21	How good are you at blending in, so that the fact that you are [identity] doesn't stand out?		

22	How able do you feel to act in a way that is the opposite of what people expect from people who are [identity]?		
23	How easy is it for you to conceal that you are [identity]?	.44	X
24	How attentive are people to cues, signs, or signals that you are [identity]? (r)	.74	X
25	How frequently do people notice that you are [identity]? (r)	.83	X
26	How able do you feel to avoid "letting it slip" that you are [identity]?		
27	How quick are people to figure out that you are [identity]? (r)	.77	X
28	How much does the fact that you are [identity] make you stand out? (r)	.52	
29	If you wanted to, how able would you be to stop being [identity]?		

Note. Only loadings greater than .40 are shown. $\alpha = .87$. Items denoted with an "X" are those ultimately retained in the final scale after Confirmatory Factor Analysis in Study 3.

Table 7

Correlations Between Subjective Identity Concealability and Scales Predicted to Converge

Scale	r	p	Adjusted p
Concealment Behaviour	.34	< .001	< .001
Concealment Motivation	.44	< .001	< .001
Collective Self-Esteem: Identity	-.28	< .001	< .001
Group Identification	-.28	< .001	< .001
Identity Centrality	-.38	< .001	< .001
Ingroup Identification: Centrality	-.30	< .001	< .001
Ingroup Identification: Ingroup Homogeneity	-.31	< .001	< .001
Ingroup Identification: Satisfaction	-.27	< .001	= .001
Ingroup Identification: Solidarity	-.32	< .001	< .001
Ingroup Identification: Individual Self-Stereotyping	-.28	< .001	< .001
Prototypicality	-.36	< .001	< .001
Self-Monitoring Scale: Ability to Modify Self-Presentation	.08	= .23	=1.00

Note. Degrees of freedom for all correlations = 225

Table 8

Correlations Between Subjective Identity Concealability and Scales Predicted to Diverge

Scale	r	p	Adjusted p
Collective Self-Esteem: Membership	-.34	< .001	< .001
Collective Self-Esteem: Private	-.16	= .02	= .17
Collective Self-Esteem: Pubic	.00	= .99	=1.00
Emotion Regulation: Reappraisal	-.09	= .20	=1.00
Emotion Regulation: Suppression	.07	= .28	=1.00
General Self-Efficacy	.07	= .33	=1.00
HEXACO: Agreeableness	-.05	= .44	=1.00
HEXACO: Conscientiousness	.03	= .63	=1.00
HEXACO: Emotionality	.03	= .63	=1.00
HEXACO: Extraversion	-.09	= .19	=1.00
HEXACO: Honesty-Humility	.04	= .57	=1.00
HEXACO: Openness	.09	= .19	=1.00
Rejection Sensitivity: Adult	-.01	= .82	=1.00
Rosenberg Self-Esteem	-.02	= .74	=1.00
Stigma Consciousness	-.36	< .001	< .001

Self-Monitoring Scale: Sensitivity to Expressive Behavior of Others	.03	= .68	=1.00
Satisfaction with Life	-.07	= .30	=1.00
Note. Degrees of freedom for all correlations = 225			

Table 9

Correlations Between Subjective Identity Concealability and Additional Scales

Scale	r	p	Adjusted p
Authenticity: Accepting External Influence	.06	= .39	=1.00
Authenticity: Authentic Living	-.04	= .58	=1.00
Authenticity: Self-Alienation	.01	= .83	=1.00
Ingroup Attitudes	-.23	< .001	< .01
Note. Degrees of freedom for all correlations = 225			

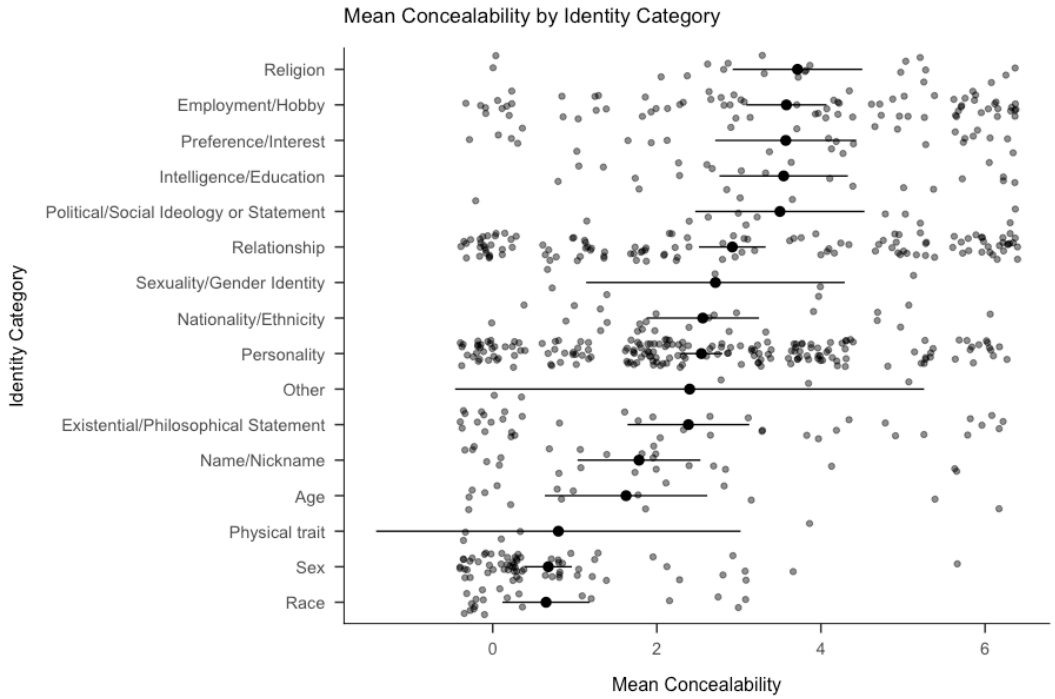
Table 10

Correlations Between Subjective Identity Concealability Theoretically-Predicted Outcomes

Scale	r	p	Adjusted p
Belonging Uncertainty	.04	= .51	=1.00
Intergroup Anxiety	-.10	= .13	=1.00
Experience of Prejudice	-.32	< .001	< .001
Situational Avoidance	-.19	< .001	= .04
Feelings of Stereotype Threat	-.09	= .16	=1.00
Note. Degrees of freedom for all correlations = 225			

Figure 1

Mean Concealability by Identity Category



Note. The scale was 0-6, some confidence intervals extend beyond the lower limit of the scale; bars represent studentized 95% confidence intervals.

Figure 2

Scree Plot Implying a Four-Factor Solution

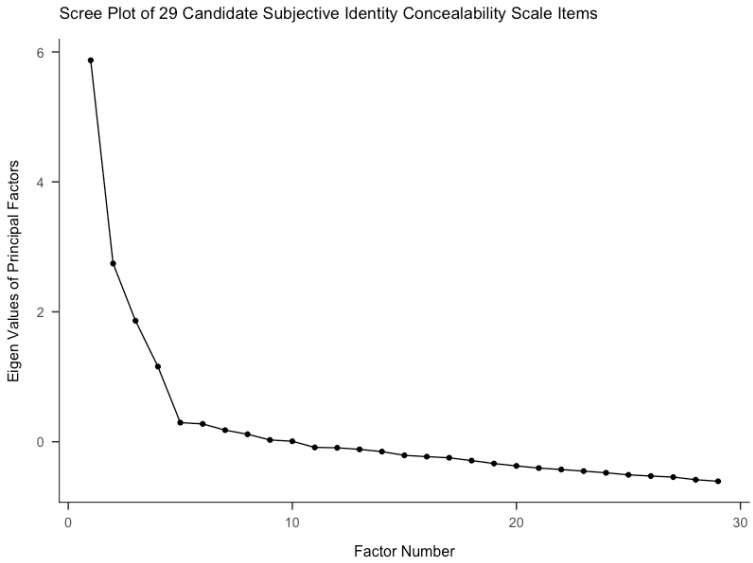
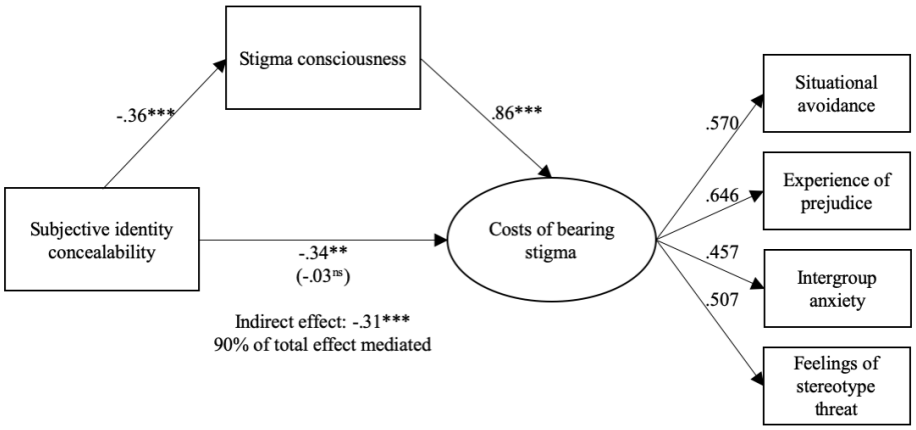


Figure 3

Structural and Measurement Models Testing Mediation of the Effect of Subjective Identity Concealability on Costs of Bearing Stigma by Stigma Consciousness



Note. All Betas standardized.

Figure 4

Forest Plot Displaying Correlation Between Subjective Identity Concealability and Experience of Prejudice

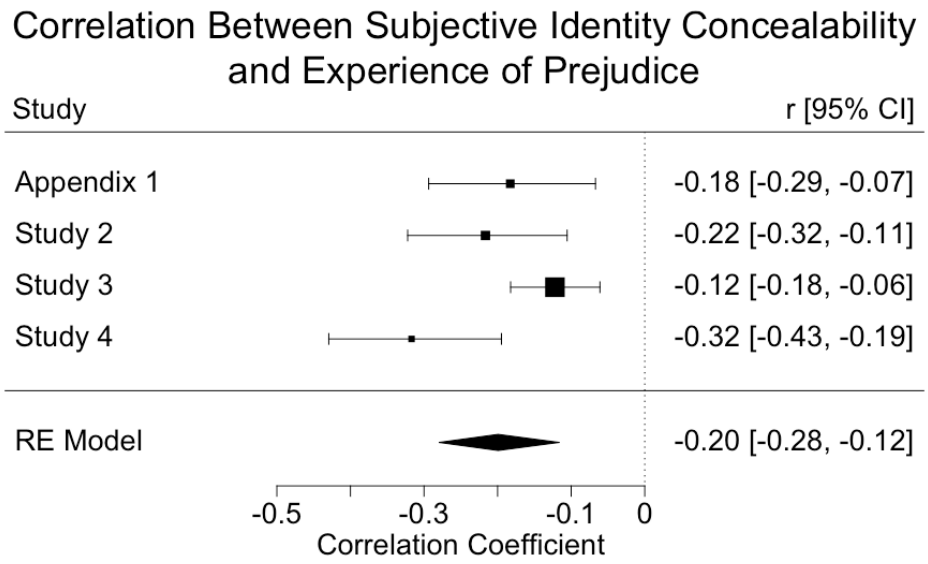


Figure 5

Forest Plot Displaying Correlation Between Subjective Identity Concealability and Feelings of Stereotype Threat

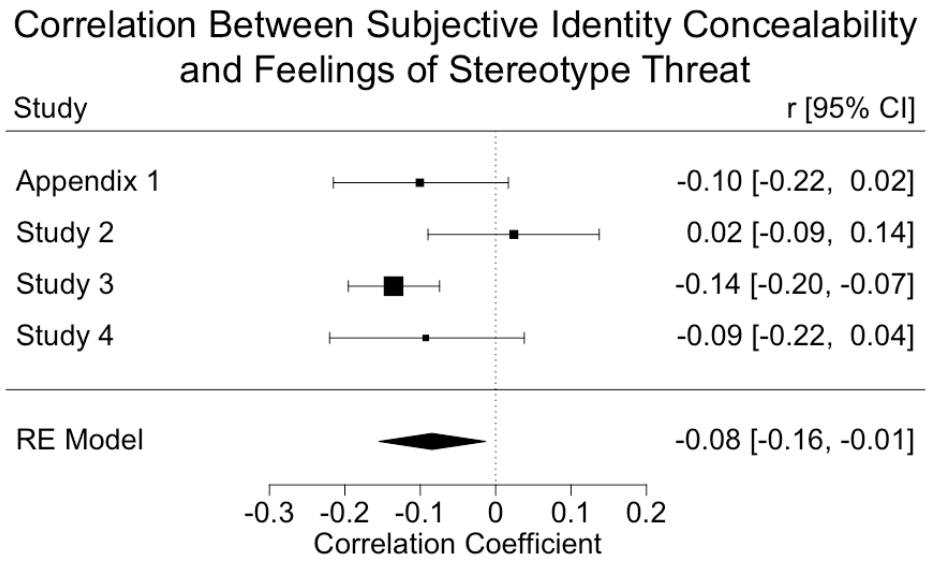


Figure 6

Forest Plot Displaying Correlation Between Subjective Identity Concealability and Intergroup Anxiety

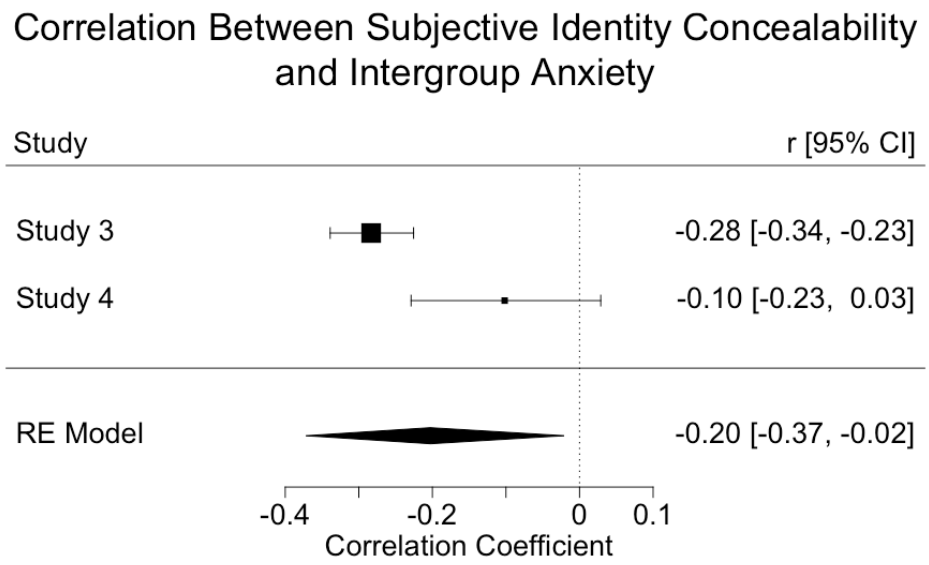


Figure 7

Forest Plot Displaying Correlation Between Subjective Identity Concealability and Situational Avoidance

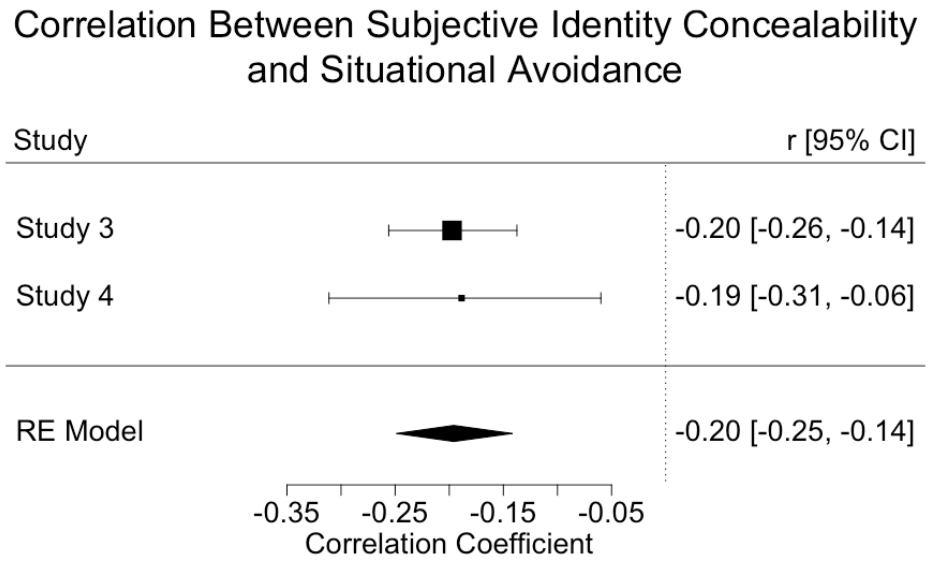
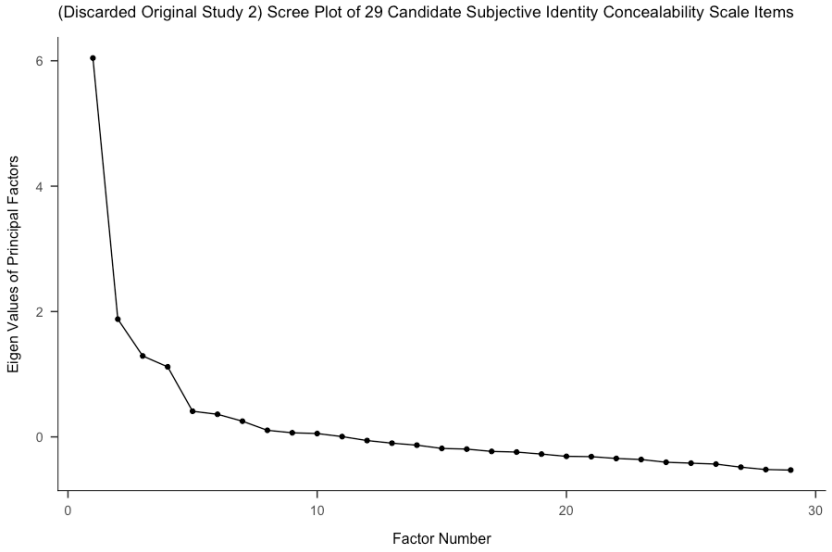


Figure 8

Scree Plot for the Original EFA Study Implying a Four-Factor Solution



Note. This scree plot corresponds with the study presented in Appendix 1.

Appendix 1

Original Study 2: Exploratory Factor Analysis

The purpose of this study was the same as that of Study 2 as reported in the main text of this document. In this section, the methods and results of the original EFA study will be reported. The main difference between this study and the main Study 2 was how focal identities were elicited from participants. In this study, participants were asked to report their religious identity, whereas participants in the main study were able to select an identity they needed or wanted to conceal from ten different identity categories. Because pilot data from Study 1 revealed religious identities to be perceived as the most concealable on average, we reasoned that questions about concealability would seem relevant to most participants in the context of religion. It was later decided that asking participants to provide an identity they would like to conceal (as was done in Studies 2-4) would be a superior route because it ensured that participants would not only be asked about a potentially concealable identity they held, but also one that they actually desired to conceal. For that reason, Study 2 was run a second time and these data were set aside. Results from the initial EFA are presented here.

Methods

Participants

Volunteer participants were recruited through the Project Implicit pool. An initial recruitment goal of 300 participants was set, following guidelines from Schwab (1980) to have at least 10 participants per scale item. Because participants would be asked about concealability in the context of their religion, quotas for participants of different religions were set to ensure that a diverse sample was recruited. Specifically, a recruitment goal of 100 Christian participants, 100 religious, non-Christian participants, and 100 non-religious participants was set. In total, data was collected from 303 participants. Missing data was dealt with through listwise deletion, leading to 42 exclusions, leaving a final sample of 261 participants (65.90% European ethnic origin, 52.11% female, M_{age} = 39.86 years, SD = 15.61 years; see Table 1 for complete demographic details).

Procedure

Participants completed the study in a single online session. After consenting to take the study, participants completed a demographic questionnaire and a battery of survey measures including the 29 candidate scale items developed in Study 1.

Measures

Demographic Questionnaire

Participants completed the demographic questionnaire first so that it could be presented side-by-side with the religion identity prompt. Here, participants reported their age, biracial status, ethnic origin, gender identity, sex, sexual orientation, and how urban or rural their place of residence is.

Identity Prompt

Participants were asked to select their religion from 10 response options. Their response to this question was piped into future questions so that they would be asked about a religious identity they actually held.

Candidate Scale Items and Dependent Variables

The same measures as those administered in the main Study 2 were then administered, including the 29 candidate scale items, 1-item measures feelings of stereotype threat (M = -0.61, SD = 2.01) and experience of prejudice (M = -1.19, SD = 1.92), and a feeling thermometer to measure ingroup attitudes (M = 1.38, SD = 1.35).

Data Preparation

All the subjective identity concealability items and outcome variables were tested for skew. Two items (subjective identity concealability items 16 and 20) had skews greater than 1 and were therefore adjusted. Item 20 was subjected to a logarithmic transformation to reduce its skew to below 1. A logarithmic transformation did not reduce the skew of item 16 sufficiently, so its square root was taken instead, as doing so reduced its skew below 1.

Analyses and Results

Exploratory Factor Analysis

Inspection of a scree plot (see Figure 8) following guidelines from Cattell (1966) yielded a four-factor solution, which was tested using maximum likelihood factor analysis with promax rotation. Items with factor loadings above .40 on only one factor were retained.

Four-Factor Solution

With the exception of Factor 4, which was labelled "performance" in this case, these had the same emergent themes as the four factors from the main EFA study. Only the first two had satisfactory reliability (αs = .84, .82, .60, and .67). Item removal could not improve the reliability of Factors 3 or 4, so they were discarded and EFA was run a second time forcing two factors.

Two-Factor Solution

Factor 1 was very similar to the other first factors in both this and the main EFA study and was labelled "perception". Factor 2 was labelled "centrality". Factor 1 had good reliability (α = .80) but Factor 2 did not (α = .58). Item 28, the item most significantly depressing alpha, was removed to improve reliability, after which Factor 2 achieved reliability of α = .81. Because subscales of equal length were desirable, the 3 most weakly-loading items were removed from the first factor, which did not change its alpha.

To assess the scale's overall reliability, McDonald's omega was calculated on the remaining 10 items. The scale's reliability was good (total ω = .87; factor 1 ω = .82; factor 2 ω = .81).

Scores for each factor were calculated by taking the means of their 5 component items after reverse-coring four of the five for each factor (Factor 1 $M = 2.32$, $SD = 0.76$; Factor 2 $M = 1.91$, $SD = 0.98$).

Exploratory Correlational Analyses

Bivariate correlations were calculated between each of the scale's factors and the outcome variables: feelings of stereotype threat, experience of prejudice, and ingroup attitudes. Factor 1

(perception) did not significantly correlate with feelings of stereotype threat, $r(259) = -.01$, $p = .92$, 95% CI [-.13, .12], experience of prejudice, $r(259) = -.10$, $p = .11$, 95% CI [-.21, .02], or ingroup attitudes, $r(259) = -.08$, $p = .18$, 95% CI [-.20, .04]. Factor 2 (centrality), however, correlated negatively with feelings of stereotype threat $r(259) = -.20$, $p < .01$, 95% CI [-.31, -.08], experience of prejudice $r(259) = -.20$, $p < .01$, 95% CI [-.31, -.08], and ingroup attitudes $r(259) = -.31$, $p < .001$, 95% CI [-.42, -.20].

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[i] In all the studies administered on Project Implicit (Study 1, Study 3, and the alternative EFA included in Appendix 1, an Implicit Association Task (IAT) was also administered to participants for educational purposes and to satisfy the criteria for inclusion on the Project Implicit platform. IAT data was not analysed in any case as we had no hypotheses related to them. This decision was pre-registered in each of the relevant pre-registrations.

[ii] Due to a coding error, one item of the complete 8-item Identity Centrality Scale was omitted, so only 7 were administered. The 7-item version of the scale demonstrates good internal reliability ($\alpha = .79$), on par with that of the full scale as reported in Sellers et al. (1997; $\alpha = .77$), and demonstrates convergent validity with other scales in our dataset measuring related constructs, including the centrality subscale of the ingroup identification scale from Leach et al. (2008), $r(225) = .72$, $p < .001$, 95% CI [.65, .78], and group identification from Verkuyten & Yildiz (2007), $r(225) = .60$, $p < .001$, 95% CI [.51, .68].