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Sense of purpose in life predicts greater willingness for COVID-19 vaccination

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ARTICLE INFO

Keywords:

Sense of purpose
Vaccination
COVID-19
Vaccine attitudes

ABSTRACT

Rationale: Despite the clear public health significance of herd immunity to COVID-19, a host of individual differences influence willingness to get vaccinated. One factor likely to motivate individuals is the extent they have a sense of purpose in life, based on the health correlates of purpose and purposeful individuals' desire to return to their pre-pandemic environments.

Objective: The current study examined sense of purpose as a predictor of COVID-19 vaccination willingness in the United States immediately following the initial approval of a COVID-19 vaccine in the United States in 2020.

Methods: A nationwide sample of U. S. adults ($N = 2009$) completed a poll including information on their sense of purpose in life, demographic factors, and depressive symptoms, immediately following the initial approval of a COVID-19 vaccine in the United States in 2020. In addition, they reported on how willing they would be to get the vaccine, assuming that the costs would be covered, as well as their motivations to get the vaccine.

Results: Multiple regression analyses found that sense of purpose predicted greater willingness to get vaccinated, even when accounting for demographic factors, political affiliation, and psychological wellbeing. Adults higher on sense of purpose reported greater importance of getting the vaccine for personal health, the health of others, and to return to regular activities. Exploratory analyses also suggest that purpose may provide a stronger impetus to vaccinate among those in age groups associated with lower risk for severe COVID-19 complications. **Conclusions:** Although cross-sectional in nature, the current findings suggest sense of purpose in life may be an important factor in encouraging vaccination. Implications are discussed regarding how purposeful messaging may yield greater vaccination rates among individuals who otherwise may be less motivated due to health concerns.

1. Introduction

“We will need health care providers, businesses, civic, religious and civil rights organizations, and unions all rallying together in common purpose and with urgency, purpose, and resolve.”

- President Joseph Biden in the opening to the [National Strategy for the COVID-19 Response and Pandemic Preparedness \(2021\)](#).

The past year has witnessed collaboration across multiple agencies toward a “common purpose” to combat COVID-19, a broad goal to improve public health and return to regular activities. Part of this effort

involves encouraging vaccinations and reducing individuals' hesitancy. Past research has demonstrated vaccine hesitancy has been associated with historical reasons ([Freimuth et al., 2017](#); [Jamison et al., 2019](#)), with this work often demonstrating reduced levels of trust in the government and other entities among Black participants. In support, recent work also finds that Black adults tend to be generally more hesitant and less accepting of novel vaccines in development ([Quinn et al., 2021](#)). In addition, support for vaccinations has been linked to psychosocial individual differences, such as conscientiousness and emotional stability ([Lin and Wang, 2020](#)). Similar demographic predictors have played out in the current vaccination effort, with initial studies again showing reduced rates among Black compared to white adults ([Head et al., 2020](#)),

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<https://doi.org/10.1016/j.socscimed.2021.114193>

Received 24 February 2021; Received in revised form 10 June 2021; Accepted 29 June 2021

Available online 2 July 2021

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and greater likelihood to refuse the COVID-19 vaccine (Callaghan et al., 2021). Moreover, recent work also shows evidence for a similar role for the same two personality traits (e.g., Murphy et al., 2021).

Although purpose has been mentioned frequently in pandemic-related discussions among politicians, policy agencies, and the news (see also United Nations, 2020), limited research attention has been paid to whether purposefulness may play a role in individuals' willingness to get vaccinated. Individuals with a greater sense of purpose perceive they have a guiding direction provided by life goals and commitments (Hill et al., 2016; Ryff, 1989). As in Biden's directive, purpose has been implicated in the vaccination discussion in two separate forms: both a common purpose, aligning people toward promoting health for all, as well as acting with purpose toward a goal and direction. The manifold disruptions caused by the pandemic significantly impacted the primary environments for individuals' goal pursuit and engagement (Burrow and Hill, 2020). In support, research shows that on days when people report more COVID-19 related stressors, they are less able to fulfill their morning expectations for having a purposeful day (Hill et al., 2020). Given this negative influence on their ability to engage with their life direction, individuals with a strong commitment to a purpose may be particularly inclined to return to their pre-pandemic lives, and to reduce the pandemic-related stressors through getting vaccinated.

This prediction aligns with research showing that purposeful individuals are more likely to enact general health-promoting behaviors, outside of the pandemic context. Sense of purpose is predictive longitudinally of lower body mass index and physical inactivity (Kim et al., 2020), as well as better health care utilization (Kim et al., 2014). Purposeful adults also appear to experience better sleep quality and fewer sleep issues (Kim et al., 2015; Turner et al., 2017). For these reasons and more, having a greater sense of purpose consistently proves to be a predictor of reduced risk for major health ailments and even early mortality (Cohen et al., 2016). Moreover, central to the notion that purpose may prove a target for vaccine messaging, recent neuroscience research suggests that having a strong life purpose may influence interpretation of health-related messaging and ultimately decision-making (Kang et al., 2019).

Based on these connections between purpose and general health behavior choices, the current study employed a nationwide survey of US adults conducted during the first weeks of vaccine rollout to examine whether sense of purpose positively predicts willingness to receive the COVID-19 vaccine. Furthermore, we examined whether the effects held when accounting for demographic factors likely to influence willingness, as well as when controlling for depressive symptoms, a proxy for general psychological well-being. Finally, we explored whether the influence of sense of purpose differed across age groups, as well as the attitudes participants held for getting vaccinated. In so doing, we considered three attitudes aligned with the message of a "common purpose," namely whether people wished for vaccinations for personal health, public health, and to return to regular activities.

2. Methods

2.1. Participants

Participants completed the current measures as part of a Harris Poll survey conducted during the week of December 14, 2020, the week immediately following U. S. approval of the first vaccine for distribution. The current study was a secondary data analysis of de-identified data collected by the Harris Poll, and thus was determined by the relevant Institutional Review Boards to not be engaged with human subjects. The Harris Poll recruited U. S. adults (total $n = 2009$) for the current study, ranging from 18 to 93 years old ($M_{\text{age}} = 48.5$ years), with the majority of individuals identifying as white (75.6%; Black 10.1%, Asian 3.6%; Native American 0.8%), female (57.8%), and Democrats (36.3%; 29.9% Republicans; 27.0% Independent). These four variables constituted the controls for the analyses. Participants were allowed to refrain from

reporting these characteristics as they preferred: 138 refrained from reporting on political party, 137 from income, and 43 from race, with some overlap across categories. Therefore, we had complete data from 1729 participants for the full regression models below; no data was missing on purpose or vaccine willingness, the primary variables of interest.

2.2. Measures

COVID-19 vaccine willingness and attitudes. Participants reported their agreement to the item "I would be willing to get the COVID-19 vaccine if it were free or covered by health insurance" on a scale from 1 (Strongly Disagree) to 7 (Strongly Agree). Using the same scale, participants reported on how much they agreed with three attitudes, that getting the COVID-19 vaccine will be important "for my health", "for the health of others in my community", and "for my returning to work or regular activities."

Sense of purpose. Sense of purpose was assessed using a four-item measure (Hill et al., 2016) that asks participants to respond from 1 (Strongly Disagree) to 7 (Strongly Agree) to four items: "There is a direction in my life", "My plans for the future match my true interests and values", "I know which direction I am going to follow in my life", and "My life is guided by a set of clear commitments (e.g., values, goals, priorities)". The items were averaged and the measure demonstrated strong reliability in the current sample ($\alpha = 0.90$).

Depressive symptoms. Depressive symptoms were assessed by administering the PHQ-9 (Kroenke et al., 2001), which asks participants how often they have experienced nine symptoms over the last two weeks, from 1 (Not at all) to 4 (Nearly every day). This measure demonstrated strong reliability in the current sample ($\alpha = 0.93$; sample item: "Feeling down, depressed, or hopeless").

3. Results

On average, participants reported moderate agreement with the vaccine willingness item ($M = 4.99$, $s.d. = 2.09$, 1–7 scale), and 54% agreed or strongly agreed with the item (6–7 on the 7-point scale). In regression results with representative population weights applied for the United States, sense of purpose was strongly predictive of vaccine willingness (est. = 0.34, $se = 0.034$, $t(1998) = 10.21$, $p < .0001$). Analyses without weighting demonstrated similar findings (est. = 0.31, $se = 0.034$, $t(1998) = 8.95$, $p < .0001$).

Logistic regressions were performed to predict who was in the agree-or-strongly-agree group, in line with past work that considered the upper-end of the scale to reflect those who "intend to vaccinate" (Ruiz and Bell, 2021). Overall, willingness to vaccinate was higher among older adults, participants with a college degree, those with higher incomes, males, non-Black participants, and participants who identified as Democrat or Independent. As shown in Table 1, even with these predictors included, sense of purpose remained a significant positive predictor of willingness (est. = 0.260, $se = 0.043$, $Wald(1) = 37.10$, $p < .0001$). Finally, we included depressive symptoms into the model, which had little impact on the role of purpose on willingness (est. = 0.294, $se = 0.045$, $Wald(1) = 43.26$, $p < .0001$).

We then explored the influence of age on the predictive value of purpose; although a linear interaction failed to predict vaccine willingness (est. = -0.002 , $se = 0.002$, $Wald(1) = 0.80$, $p = .330$), a non-linear pattern was suggested. Fig. 1 plots the percentage of individuals in the agree-or-strongly-agree category, based on higher or lower scores on purpose across age groups. Findings suggest purpose may hold greater predictive value for individuals 30–49 years old; as a follow-up, we examined this further by conducting t-tests comparing purpose scores for those willing versus not for each age group. Accounting for the six comparisons using a restricted alpha level ($.05/6 = 0.00833$), we found significant differences in purpose only for the 30–39 age group ($t(349) = 6.96$, $p < .001$, $d = 0.75$), 40–49 age group ($t(333) = 5.82$, $p <$

Table 1

Predicting dichotomous vaccine willingness from purpose, demographic factors, and political affiliation. Gender is coded with females as the comparison group; education is coded with participants without a high school degree as the comparison group; income is coded with under \$50,000 a year as the comparison; race is coded with White as the comparison; political affiliation with Republican affiliation as the comparison.

Predictor	Estimate (se)	Wald	p-value	Exp (B)	95% CI
Age	.028 (.003)	74.631	<.001	1.028	1.022 to 1.035
Gender	.231 (.112)	4.203	.040	1.259	1.010 to 1.570
Education (High school degree)	.017 (.226)	0.005	.942	1.017	.653 to 1.582
Education (College degree)	.480 (.242)	3.949	.047	1.616	1.007 to 2.596
Income (\$50,000 - \$74,999)	.186 (.150)	1.540	.215	1.205	.898 to 1.617
Income (\$75,000 - \$99,999)	.422 (.180)	5.498	.019	1.526	1.072 to 2.172
Income (\$100,000+)	.608 (.159)	14.601	<.001	1.836	1.345 to 2.508
Race (Asian)	.138 (.286)	0.234	.628	1.149	.656 to 2.012
Race (Black)	-.583 (.198)	8.662	.003	.558	.378 to .823
Race (Hispanic)	-.188 (.206)	0.835	.361	.828	.553 to 1.241
Race (Native American)	-.006 (.552)	0.000	.992	.994	.337 to 2.932
Political Party (Democrat)	.901 (.132)	46.495	<.001	2.462	1.900 to 3.190
Political Party (Independent)	.367 (.043)	7.024	.008	1.443	1.100 to 1.892
Sense of Purpose	.260 (.043)	37.104	<.001	1.297	1.193 to 1.410

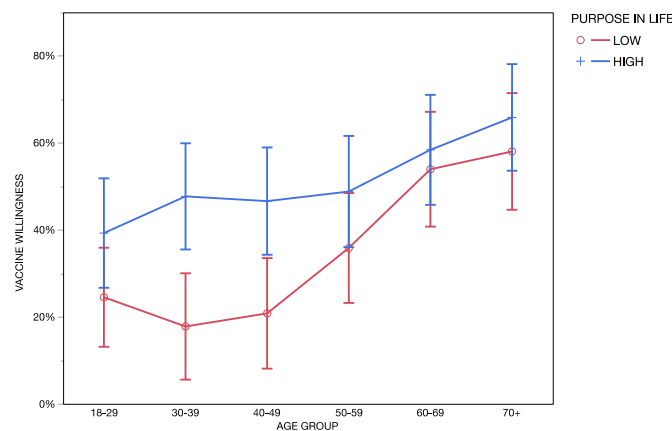


Fig. 1. Plot of the vaccine willingness for individuals high versus low on sense of purpose, by age group.

.001, $d = 0.64$), and the 70+ groups ($t(348) = 2.86, p = .004, d = 0.31$), with the first two groups having over double the effect size of the last difference.

Finally, we considered associations between sense of purpose and vaccine attitudes. Sense of purpose was positively correlated with endorsement to all three items, to a very similar magnitude: getting the vaccine is important for my health, $r(2009) = 0.189$; important for others' health, $r(2009) = 0.202$; important for returning to activities, $r(2009) = 0.192$, all p 's < 0.001. As such, it appears that purposeful adults were more likely to hold attitudes aligned with the general goals of a "common purpose" approach to combatting COVID-19.

4. Discussion

The notion of purpose has been invoked frequently in campaigns to combat the ongoing pandemic; however, work is limited regarding the role of purpose in predicting vaccination willingness. In a nationally representative sample of US adults, participants with a sense of purpose in life were more willing to get vaccinated, with this effect more pronounced among middle-aged adults. In this respect, commitment to a purpose in life may motivate those individuals who are not otherwise motivated by the higher-risk for COVID-19 complications. The influence of purpose on vaccination willingness held even when accounting for: (1) demographics known to influence vaccination rates (Head et al., 2020), (2) political affiliation, shown to predict influence vaccination attitudes in the United States (Ruiz and Bell, 2021), and (3) depressive symptoms, an indicator of psychological well-being often correlated with sense of purpose (Pinquart, 2002).

Exploratory analyses found adults with a stronger sense of purpose viewed the vaccine as important for returning to daily activities, for their own health promotion, and for others' health, with all three similarly associated with sense of purpose. These findings provide a connection between purpose and the "common purpose" of defeating COVID-19, insofar that all three attitudes constitute components of wide-scale campaigns to motivate individuals toward vaccination. Put differently, purposeful individuals may be more willing to get vaccinated because they see its value for promoting the common purpose as well as their own.

Past research shows that sense of purpose can be manipulated through modest writing prompts, yielding significant changes in behavioral intention (Burrow et al., 2014). Though untested, these studies scaffold efforts by companies and political figures to frequently invoke purpose, insofar that having individuals reflect on the idea may be sufficient for behavioral changes. Accordingly, there is potential value both in continued messaging around purpose, as well as perhaps reflection encouraging people write about purposeful activities in pre-pandemic life. Such campaigns may be most valuable for promoting vaccine willingness among those in middle adulthood. The evidenced age differences are particularly interesting given that this developmental period is one defined by relative continuity and maintenance of work- and community-related roles (Hutteman et al., 2014), and one when individuals tend to report relatively higher sense of purpose relative to other points of the lifespan (Ryff and Keyes, 1995). It thus may be during middle adulthood that individuals feel more disrupted by the pandemic's impact on their environments.

4.1. Limitations

These recommendations are made with acknowledgment of the limitations with the current work. First and foremost, the current study was cross-sectional in nature, hindering the ability to make causal claims. Given the work on purpose and COVID-19 stressors (Hill et al., 2020), it will be of interest also to examine how getting vaccinated influences individuals' sense of purpose. Second, the current study asked participants about their willingness to get vaccinated rather than a more objective behavioral outcome. Both of these limitations though are reflective of the timing of the current work; when the study was conducted, for most individuals there were no options available to receive the vaccine or even sign up for future notifications, as such limiting the ability for testing bidirectional associations or actual vaccination rates. Therefore, the timing of the current study was a strength with respect to surveying individuals immediately following the government approval of the vaccine. However, it did lead to potential methodological concerns that must be noted when considering how to implement the current findings into efforts to improve vaccination rates.

5. Conclusions

The influx of purpose-based messaging reflects the vaccine's promise of allowing individuals to return to regular activities that may have driven past daily life. Moreover, sense of purpose may hold greater import for those individuals whose goal-directed activities were most disrupted by leaving these daily contexts. Indeed, the greatest differences in effect size were shown for individuals in young and middle adulthood. Although purposeful adults were somewhat more likely to get the vaccine at all ages, current findings also show that reminding people of their purpose, core values, and goal commitments could prove a valuable tool toward encouraging adults not already motivated by health concerns.

Credit author statement

Patrick L. Hill: Conceptualization, writing – original draft, writing – review and editing. **Anthony L. Burrow:** Conceptualization, writing – review and editing. **Victor J. Strecher:** Conceptualization, writing – review and editing, formal analysis.

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