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Religious Unbelief in Israel: A Replication Study Identifying and Characterizing Unbelievers Using Latent Class Analysis

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ABSTRACT

With an ever-increasing global trend of secularization, understanding the nature of religious unbelief is of utmost importance. A recent study used Latent Class Analysis to identify three different groups of unbelievers in the highly secular context of Northern Europe. In the present commentary we report the outcomes of a replication study on religious unbelief in Israel. We identified two instead of three groups of unbelievers: analytic atheists and spiritual-but-not-religious participants. These groups differed in terms of their beliefs, attitudes, and certainty, as well as on a number of other socio-cognitive variables, including analytical thinking and ontological confusions. Compared to Northern Europe, unbelievers in Israel held more polarized attitudes toward religion, which might be related to the stronger public prevalence of religion in society in Israel. Our findings add to the growing literature on religious unbelief and highlight the relevance of a cross-cultural and data-driven approach for understanding unbelief.

Theoretical background

There is a renewed interest in the study of religious unbelief, i.e., the worldviews and beliefs of those who don't explicitly endorse belief in a theistic god (Coleman et al., 2018). Recently, Lindeman et al. (2019) identified three different groups of unbelievers in Northern Europe with the use of Latent Class Analysis (LCA): analytical atheists, uncertain unbelievers, and spiritual-but-not-religious groups. Here we describe the outcomes of a replication study ($N = 591$) on religious unbelief in a non-European/non-Christian society.

Israel is characterized by a diverse and unique religious landscape, including Jews, Muslims, Christians, and Druze. Nearly 80% of the people identify as Jewish, among which a majority of secular Jews, a smaller group of traditional Jews and a minority of religious and ultra-orthodox Jews (2016), while the number of orthodox and ultra-orthodox Jews appears to be on the rise (Rebhun & Levy, 2006). Religion is highly visible in society and there are many religious historical sites that are of importance to followers from the major Abrahamic religions. Similar to the rise of new spiritual movements in the US and Northern Europe, in Israel, a new class of New Age believers has been described, who are characterized by an eclectic mix of spiritual beliefs (Ruah-Midbar & Oron, 2010).

At the same time, in Israel religion is strongly entangled with political and Zionist ideology (Bermanis et al., 2004) and the society appears strongly segregated in different religious and secular groups (Sahgal & Cooperman, 2016), resulting in widespread prejudice and more extreme views on religion (Gordon, 1989; Tabory, 1993). There is an increasing tension between secular and religious Jews, fueled by laws related to divorce (Fournier et al., 2011), formal education (Shaham, 2017), and gender in public places (Eglash, 2018). Israel also differs in the social functions and gender roles associated with religion: whereas in most Christian societies, a gender gap is reflected in that women

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tend to be more religious than male, in Israel the pattern is reversed and men are more religiously devoted than females, likely reflecting the strong gender norms inherent in Judaism (Schnabel et al., 2018).

However, as of yet little is known about religious unbelief in an Israel context. Most studies on this topic so far have been either conceptual (e.g., Engelberg, 2015) or qualitative (e.g., Yadgar, 2010). Quantitative data on unbelief in Israel are scarce, taking into account that the findings from for instance, the Israel Central Bureau of Statistics may partly be driven by ideological considerations (Cohen & Susser, 2009). Thus, the present study – next to replicating key findings from previous research on unbelief in Northern Europe – also offers new insight into the nature of religious unbelief in Israel. By recruiting secular and non-religious Israeli participants we aimed to identify whether similar groups of unbelievers exist in Israel as in Northern Europe, and to characterize their attitudes toward traditional religion.

Results

Identifying types of unbelievers

The materials and procedure were identical to those described in Lindeman et al. (2019). The data-set related to this study can be found on the Open Science Framework (<https://osf.io/8wsdq/>). We also include the survey materials in Hebrew and the analysis scripts on the OSF. In total we recruited 1100 participants (40.4% males) mostly through secular discussion forums, websites, and mailing lists. Only participants who answered, “Strongly disagree,” to the item “I believe in God” (N = 591; 47% males; mean age = 37.6 years; age range = 18–80), were kept for the final analysis. In order to identify the different groups of unbelievers in the Israeli dataset, a latent class analysis was conducted based on eight supernatural belief items (e.g., belief in angels, fate, spiritual energies etc.; see Figure 1). The LCA was run using “Q professional Software” (Displayr International, P. L., 2019). The Bayesian Information Criterion (BIC) and consistent Akaike’s information criterion (CAIC) were used to identify the best fitting model. These measures provide a relatively conservative estimate of best model fit (compared to other measures, such as for instance, the AIC and the AIC3; see Table 1), according to which the best fitting model results in the lowest BIC and CAIC scores. Based on the observed BIC and the CAIC, in the dataset from Israel, a two-groups model (Table 1) provided the best fit, in contrast to the Lindeman et al. (2019) study, in which a three-group model was identified.

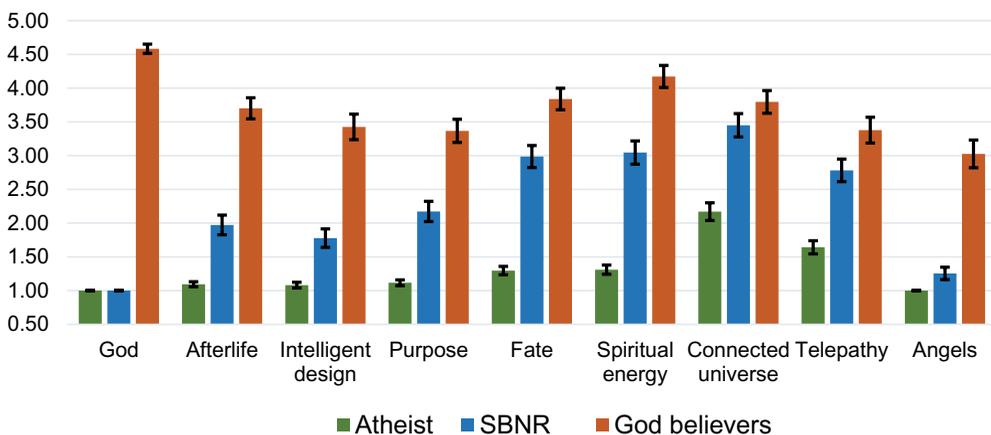


Figure 1. Supernatural beliefs mean score with confidence intervals (CI 95%) among the two latent groups; Atheists (dark green) and spiritual-but-not-religious (dark blue). God believers’ scores (orange) are included as a comparison.

Table 1. Fit indices for the latent class analyses.

Model	AIC	BIC	CAIC	AIC3	Entropy
Aggregate	9,561.85	9,702.07	9,702.12	9,593.85	
2 groups	8,915.22	9,200.04	9,200.15	8,980.22	0.801
3 groups	8,822.15	9,251.57	9,251.73	8,920.15	0.773
4 groups	8,800.85			8,931.85	0.800
5 groups	8,770.37				0.761
6 groups	8,788.21				0.787

AIC = Akaike Information Criterion, BIC = Bayesian information criterion, CAIC = consistent Akaike's information criterion.

The group of unbelievers ($N = 591$) was divided into two subgroups. The first group consisted of 62.8% of the total numbers of unbelievers ($N = 371$); the second group of 37.2% ($N = 220$). The self-selected religious-identification group was used in order to characterize the other two groups. For the first group, the most frequently used self-categorization label was “atheist” (59.6%), followed by “Nonbelievers” (17.5), and “Secular” (7.5%). As the scores on the supernatural belief items were in the same range as in the Lindeman et al. (2019) study, we named this group the “analytical atheist group.” The second group identified most frequently as “atheists” (38.2%), followed by “secular” (15.5%), and “nonbelievers” (15.5%). Because the second group scored similarly on the supernatural items as the SBNR group identified by Lindeman et al. (2019), it was labeled “spiritual but not religious” (SBNR).

Regarding the country of residence, the atheist group mostly resided in Israel (83.8%), followed by Europe (13.2%), North America (2.4%), and other (0.5%). For the SBNR group, the participants were from Israel (76%), Europe (22.1%), North America (1.4%), and other (0.5%). It is important to remember that the sample in this study is not a representative sample of Israelis, but a convenience sample collected via the snowballing method.

To visualize the differences between the latent groups and the religious individuals, the mean scores of the supernatural beliefs (e.g., “I believe in fate”) are represented in Figure 1. Religious believers in this figure were only used as a comparison to the latent groups, and they were not included in the LCA. For the religious group, only those who agreed or strongly agreed with the item “I believe in God” ($N = 204$) were included. The figure shows that Atheists ($N = 371$) reject approximately all supernatural beliefs, while the SBNR group ($N = 220$) moderately accepts supernatural beliefs. This finding is consistent with the results of Lindeman et al. (2019).

Description of unbeliever types

Multiple ANOVAs were used to describe the different unbeliever groups. In order to adjust for multiple comparisons, a Bonferroni correction was applied for each main construct. The first ANOVA explored the difference in the certainty of the participants regarding their supernatural beliefs. A lower score indicates a higher certainty. A full description of the results is included in Table 2. The results can be summarized as follows: atheists were more certain about their lack of supernatural beliefs than SBNR for the following items: God, afterlife, intelligent design, purpose, fate, spiritual energy, telepathy, and angels.

Next, the unbeliever group affiliation, religious-identification and additional background variables were analyzed. The main religious affiliations in both groups were Judaism (Atheist 58.5%, SBNR 70.5%) or no religious affiliation (Atheist 40.7%, SBNR 27.7%). Atheists were more often men (55%) than women; SBNR were more often women (68%) than men $\chi^2(2) = 32.94$, $p < .001$. The groups did not differ in age, $t(589) = -.84$, $p = .4$, education level $\chi^2(6) = 11$, $p = .088$, and subjective SES, $\chi^2(9) = 7.44$, $p = .591$. The two groups also did not differ in their father's or mother's religiosity, $\chi^2(3) = 4.09$, $p = .251$ and $\chi^2(3) = 5.213$, $p = .157$.

Table 2. Differences in the certainty of supernatural beliefs between the two latent unbeliever groups. Religious believers' scores are included as comparison.

Belief	Atheist		SBNR		Religious Believers		Contrast: Atheist vs SBNR		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>P</i>	η^2
Intelligent design	1.16	0.44	1.33	0.56	1.42	0.62	16.81	<.000	.028
Afterlife	1.17	0.44	1.40	0.60	1.59	0.67	26.33	<.000	.043
Purpose	1.14	0.40	1.35	0.58	1.43	0.59	25.76	<.000	.042
Fate	1.16	0.41	1.41	0.59	1.34	0.54	36.00	<.000	.058
Spiritual energy	1.21	0.47	1.34	0.52	1.30	0.51	9.06	.003	.015
Connectivity	1.38	0.57	1.40	0.56	1.40	0.56	0.13	.710	.000
Telepathy	1.33	0.55	1.43	0.56	1.41	0.55	4.49	.350	.008
Angels	1.03	0.20	1.14	0.40	1.43	0.60	18.85	<.000	.031

The statistical comparison entailed only the contrast between Atheist and SBNR participants. Lower score indicates higher certainty in response. SBNR = Spiritual-but-not-religious. SD = standard deviation.

Next, one-way ANOVA was conducted to explore the difference between atheists and SBNR with respect to cognitive, attitudinal, epistemic, and value items (Table 3). In general, atheists differed from SBNR in their evaluation of, extremity, and ambivalence regarding religion. In addition, atheists were more certain than SBNR that they held the right attitude regarding religious issues. Atheists indicated a higher importance of science and a lower importance of religion in society compared to SBNR. SBNR saw less conflict between science and religion, relied more on intuitive thinking, showed a tendency to over-mentalize, and showed more ontological confusions. In general, these findings are similar to the results presented by Lindeman et al. (2019).

Next to replicating the study of Lindeman et al. (2019), this study aimed to investigate if there was a difference in attitudes toward religion between unbelievers in Israel and in Europe. One sample *t*-tests were conducted to assess whether Israeli unbelievers differed from European unbelievers in terms of their attitudes toward religion. Lindeman et al. (2019) reported the following attitude scores toward religion in their Northern European sample:

Evaluation: $M = 2.27$ $SD = 0.76$; Extremeness: $M = 1.88$ $SD = 0.64$; Ambivalence: $M = 2.25$ $SD = 0.92$; and Positive Emotions toward religion: $M = 1.73$ $SD = 0.93$. The results from the present study showed that the Israeli sample had significantly more negative evaluations of religion ($M = 1.75$, $SD = 0.8$) $t(572) = -14.33$, $p < .001$, were more extreme ($M = 3.30$, $SD = 0.74$), $t(572) = 45.98$, $p < .001$, less ambivalent ($M = 1.7$, $SD = 0.77$), $t(572) = -16.79$, $p < .000$, and lastly, had less positive emotions toward religion ($M = 1.28$, $SD = 0.64$), $t(572) = -16.92$, $p < .001$.

Discussion

This study set out to investigate the prevalence and nature of unbelief in Israel. We found two similar groups of God unbelievers in Israel, as previously identified in Northern Europe (Lindeman et al., 2019): analytical atheists and spiritual-but-not-religious (SBNR) participants. Previous studies already suggested the emergence of a new class of spiritual believers in Israel, which are characterized by a mixture of traditional religious Judaism beliefs and spiritist practices (Lebovitz, 2016; Ruah-Midbar & Oron, 2010). This group was dubbed the as the “Jew Age” believers and our SNBR group likely shows considerable overlap with this group: compared to the atheists they were less certain about their supernatural beliefs, but also less outspoken than traditional religious people – thereby replicating the pattern that we observed in Northern Europe. Compared to Europe, however, unbelievers in Israel held stronger negative evaluations of religion overall. This is likely related to the stronger segregation in the Israel society between different religious, secular, and atheist groups (Sahgal & Cooperman, 2016), resulting in stronger out-group prejudice (Gordon, 1989; Tabory, 1993). An interesting observation is that most participants chose Judaism as their worldview, but still most often identified as

Table 3. Differences between the two latent unbeliever groups in attitudes, cognitive, and worldview measurements. Religious believers' scores are included as a comparison.

Variable	Atheists		SBNR		Religious believers		Contrast: Atheists vs. SBNR		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>P</i>	η^2
Religious attitudes									
Evaluation*	1.64	0.77	1.93	0.97	3.54	1.20	15.59	<.000	.022
Extremity*	3.39	0.69	3.15	0.8	2.19	0.67	14.27	<.000	.024
Ambivalence*	1.60	0.69	1.87	0.88	2.80	0.93	16.47	<.000	.028
Interest	2.11	0.81	2.03	0.81	2.93	0.96	1.03	.310	.000
Importance of attitudes	3.13	1.14	3.08	1.19	2.95	1.06	0.31	.574	.000
Elaboration	2.23	1.14	2.24	1.00	2.74	1.04	0.00	.992	.000
Easy to explain	4.13	1.03	4.02	1.05	3.36	1.06	1.41	.235	.000
Positive emotions+	1.23	0.57	1.36	0.74	3.01	1.21	4.84	.028	.000
Negative emotions	1.88	1.25	1.94	1.24	3.17	1.11	0.24	.620	.000
Correctness*	3.82	1.23	3.40	1.29	2.97	1.21	15.02	<.000	.025
Considering change	1.53	0.96	1.46	0.81	2.23	1.05	0.77	.378	.001
Other people*	3.33	1.51	2.96	1.47	2.27	1.21	8.25	.004	.014
Importance of science*	4.33	0.50	4.20	0.53	3.97	0.51	6.54	.011	.016
Importance of religion*	1.99	0.75	2.24	0.79	3.30	0.89	9.92	.002	.024
Conflict (science vs. religion) *	2.79	0.49	2.58	0.61	1.91	0.72	14.03	<.000	.033
Cognition									
Cognitive reflection*	2.57	1.58	2.13	1.52	1.88	1.40	11.17	.001	.018
Need for cognition	3.25	0.49	3.16	0.54	2.91	0.58	3.37	.067	.007
Faith in Intuition*	2.56	0.50	2.88	0.52	3.00	0.50	41.18	<.000	.083
Core confusions*	2.25	0.42	2.58	0.47	2.83	0.52	57.91	<.000	.115
Over-mentalizing*	1.18	0.23	1.42	0.47	1.63	0.56	48.34	<.000	.103
Dualism+	2.29	1.42	1.97	1.24	1.86	1.03	5.38	.021	.013
Social cognitive impairment*	2.06	0.54	1.92	0.51	1.89	0.49	7.69	.006	.015
Epistemic Stance									
Views about arguments*	1.42	0.25	1.55	0.27	1.57	0.25	28.86	<.000	.057
Complexity of knowledge*	2.89	0.66	3.21	0.64	3.18	0.59	29.03	<.000	.051
World View									
Values									
Tradition*	2.82	1.69	3.41	1.83	5.73	2.31	15.8	<.000	.026
Conformity*	4.55	2.18	5.22	2.15	6.07	2.19	13.39	<.000	.022
Simulation	6.21	1.89	6.49	1.95	6.23	1.99	2.95	.086	.004
Hedonism	4.89	1.9	5.01	2.08	4.87	1.85	0.52	0.47	.000
Self-direction*	7.4	1.69	7.75	1.54	7.43	1.79	6.08	.014	0.010
Free will	3.62	0.74	3.74	0.69	3.66	0.62	2.69	.101	.006
Scientific determinism	3.16	0.55	3.11	0.57	3.04	0.61	0.58	.446	.001
Porous mind*	2.22	0.75	2.61	0.73	2.96	0.67	25.06	<.000	.058

The statistical comparison entailed only the contrast between Atheist and SBNR Asterisk "*" symbol indicated significant results after correction for multiple comparisons. Plus "+" symbol indicated significant results of $p < 0.05$ before correction for multiple comparisons. Religious believers are only presented for comparison. A high score in dualism indicates less overlap between body and mind. A higher score on the cognitive reflection test reflects more analytical thinking. A low score for over-mentalizing indicates less over-mentalizing. SBNR = Spiritual-but-not-religious. SD = Standard deviation.

an atheist even though they could choose between different self-identification options (e.g., "secular," "religious," "orthodox," etc.). This indicates that for many unbelievers in Israel Judaism is more a cultural worldview and lifestyle (e.g., celebrating Shabbat, respecting dietary laws, attending synagogue), even though they do not necessarily adhere to the religious beliefs associated with those practices (Rebhun & Levy, 2006).

There was no evidence for the existence of a third group that had been identified previously as uncertain nonbelievers. This could be related to the smaller sample size in our study and to cultural differences, e.g., related to a stronger prevalence of religion in public life in Israel, thereby resulting in more polarized views and beliefs. In sum, our findings replicate and extend previous work on religious unbelief and highlight that a data-driven approach such as LCA may be a useful tool to characterize different groups of unbelievers.

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