Beyond distrust: are meta-ethical beliefs the key to understanding anti-atheist prejudice?

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by

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[1] I will proceed in alphabetical order. See what I did there?

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Dissertation Summary

The present dissertation is focused on the analysis of anti-atheist prejudice in Poland, one of the most religious countries worldwide. In the thesis, I present a novel synthesis of the current theoretical framework of anti-atheist research (religious prosociality hypothesis, Norenzayan & Shariff, 2008; sociofunctional approach to prejudice, Cottrell & Neuberg, 2005) with a notion of meta-ethical beliefs. Specifically, I propose that meta-ethical beliefs rooted in the divine command theory (of which the main assertion is that what is right and wrong is determined by the will of God, Adams, 1979) are closely connected with atheist distrust, the core component of anti-atheist prejudice (Gervais, Shariff, & Norenzayan, 2011). Four studies have been conducted within the framework of the thesis, one of which was devoted to the validation of a meta-ethical beliefs questionnaire, developed for the purpose of the dissertation. The findings highlight the importance of both beliefs on divine origins of morality and distrust towards atheists with regard to the relationship between intrinsic religiosity and anti-atheist prejudice. This suggests that perception of morality, and not only perception of atheists themselves, is crucial to anti-atheism research. Furthermore, evidence for mutual religion-based prejudice (anti-theist & anti-atheist) has been found, the dynamics of which will have to be taken into account in the future studies.

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"The denial of God springs from a man's desire not to have a God - from his wish that there were no Justice behind the universe, so that his injustices would fear no retribution; from his desire that there be no Law, so that he may not be judged by it; from his wish that there were no Absolute Goodness, that he might go on sinning with impunity."

Archbishop Fulton J. Sheen (1895 - 1979)

Prejudice has been subject of the scientific inquiry since at least 1906 and Sumner's study of ethnocentrism. However, one could say that its proper study began with the publication of Allport's *The Nature of Prejudice* in 1954. A univariate notion of prejudice described therein, understood as a general negative attitude towards specific social groups and their members, dominated psychology since then (Dovidio, Gaertner, & Pearson, 2005; see Brewer & Brown, 1998 for a review of theories of prejudice) and seems to still hold its position even now (e.g., Jackson, 2011). Generally, scholars were more interested in prejudices towards specific groups (e.g., racism) rather than the essence or dimensions of prejudice itself (Crandall & Eshleman, 2005). Attempts to approach prejudice in more structural depth were fewer, yet influential (Haddock, Zanna, & Esses, 1993), resulting in dual process model (Duckitt, Wagner, du Plessis, & Birum, 2002), stereotype content model (Cuddy, Fiske, & Glick, 2008) or a distinction between subtle and blatant prejudice (Pettigrew & Meertens, 1995), among others. Cottrell and Neuberg (2005) addressed this issue by pointing out that prejudice should not be seen just as a general negative evaluation, simply because it is connected to distinct emotional reactions. Aggregate measures of prejudice, which have often been used, do not provide sufficient insight as prejudice towards two completely different groups might be similar in terms of general negativity and at the same time significantly diverse when it comes to what kind of threat is perceived as being posed by the outgroup, and what emotions and reactions are evoked by that perception. The

aforementioned observation became the foundation of the new framework - a sociofunctional approach to prejudice, which enjoys considerable interest as of late.

This brief overview shows how theoretical approaches to prejudice evolve and expand, but cannot possibly - and does not aim to - do justice to the tremendous amount of scientific work in the field across the years. Though a great deal has been achieved, there are still blanks to be filled and important questions to be tackled (Stangor, 2015). One of the issues that needs to be addressed is the limited scope of the target groups studied. In fact, the focus has been placed mostly on the groups that are negatively evaluated by the conservatives (Crawford & Brandt, 2020). The literature of the subject is abundant in studies of, among others, racial, religious or ethnic discrimination. For instance, a quick look through the second edition of the *Handbook of Prejudice, Stereotyping, and Discrimination* (Nelson, 2015) will result in finding chapters dedicated exclusively to racism, ageism, and sexual prejudice. Of course, the importance of this research cannot be overestimated, and it is particularly needed due to the worldwide prevalence of those undeniably detrimental phenomena. However, it is equally significant to address the issue of discrimination towards previously overlooked groups like children (Young-Bruehl, 2012), vegetarians (Earle & Hodson, 2017) or individuals inflicted with mental illness (Corrigan, Edwards, Green, Diwan, & Penn, 2001). The present dissertation aims at analyzing prejudice against one of such neglected target groups: atheists. Even though they do not form a cohesive or socially distinctive group, individuals who do not believe in God are subject to antipathy or even discrimination in countries in which most of the inhabitants are religious (Gervais, Shariff, & Norenzayan, 2011). This means that there is arguably high probability of atheists being subjects to prejudice - according to the Global Report on Religion (WIN/Gallup International, 2017) the mean percentage of people identifying themselves as religious (globally) is equal to

62% compared to 9% of atheists[2]. Of course, these are not the only reasons that justify conducting anti-atheism research. There are several other factors which highlight its significance and should be taken into account. Firstly, the global religious composition is subject to constant fluctuations and it is expected to further change in the years to come, the atheist share of the population decreasing (Pew Research Center, 2015). According to these predictions, non-believers will remain a minority in the future. With religious diversity growing worldwide and atheists being even less numerous than presently, intergroup frictions and conflicts might become more common. However, the population size is not the only demographic difference to be considered. An extensive study by Pew Research Center (2018) revealed a prevalent age gap in terms of religiosity. Namely, one of the findings was that religion was less likely to be very important to younger people (aged between 18 and 39) as compared to older ones (over 40 years old) in 46 countries out of 106 investigated in total. In other words, one could expect that tensions between believers and non-believers might have to do not only with religious heterogeneity or minority-majority dynamics, but could be secondarily reinforced by generational differences as well.

Another point which needs to be raised here is that anti-atheism has deleterious consequences for non-believers, as has been already evidenced. As one might expect, perceived discrimination has a negative effect on atheists' well-being, but at the same time it is positively related to identifying as a non-believer (Doane & Elliott, 2015), in line with the rejection-identification model (Branscombe, Schmitt, & Harvey, 1999). Furthermore, expecting stigmatization was found to be negatively associated with both physical and mental well-being (Abbott & Mollen, 2018). In addition, a meta-analysis by Weber, Pargament, Kunik, Lomax, and Stanley (2012) identified one of the factors that contributes to

[2] When compared with previous surveys, a decreasing tendency can be observed. The global percentage of atheists reported in 2012 was equal to 13% (WIN-Gallup International, 2012), while in 2015 it dropped to 11% (WIN/Gallup International, 2015).

psychological distress in non-believers: the way they are perceived by others (i.e., as deviants or outcasts). As atheism is an example of a concealable stigmatized identity (Goffman, 1963), non-believers might choose not to disclose their disbelief to avoid discrimination. In fact, it seems to be a very common course of action. Taking into account the stigma connected to atheism in the United States, Gervais and Najle (2018) tested whether the official statistics match the real numbers. In fact, a large discrepancy was found and the estimate calculated by the unmatched count technique was equal to 26%, while self-report measures were ranging from 3 to 11%. Although identity concealment is a potentially efficient strategy of dealing with discrimination (e.g., Cook, Salter, & Stadler, 2017), it is not free from certain costs, for example a lowered feeling of belonging (Camacho, Reinka, & Quinn, 2020; Newheiser & Barreto, 2014). Still, disclosure might prove challenging for atheists, especially in countries with predominantly religious populations and limited non-believer social networks, where risks associated with coming out outweigh the anticipated benefits.

Taking these findings together, the need for studying anti-atheist prejudice becomes even more evident. Anti-atheism has both direct and indirect effects on non-believers as concealing an irreligious identity might in fact be a double-edged sword. Concluding that atheists are at risk is by no means an exaggeration and shows the need for further research.

In the first chapter of the dissertation, the data on the prevalence of the anti-atheist prejudice is presented. This section is divided into two parts: the overview of the phenomenon worldwide and a closer look at the case of Poland, a country in which national identity is intimately linked with religion. Next, I discuss the state of the art and present an overview of the anti-atheist prejudice studies so far. Then, the theoretical framework is introduced: the religious prosociality hypothesis and the sociofunctional approach to prejudice. In the final chapter of the theoretical part of the dissertation I propose an extension of the current approach by including the notion of meta-ethical beliefs.

Anti-Atheist Prejudice Around the Globe - An Overview

The Freedom of Thought Report (Humanists International, 2019) is one of the most comprehensive indicators of anti-atheism worldwide. The document presents a ranking of 196 countries based on their evaluations in four broad criteria: 1) *constitution and government*, 2) *education and children's rights*, 3) *family, community, society, religious courts, and tribunals*, and 4) *freedom of expression, advocacy of humanist values* (pp. 20-22). Out of all the rated nations, 74 received a *severe discrimination* mark in at least one category, while 4 of them scored a *grave violations* grade in all four (North Korea, Pakistan, Afghanistan, and Saudi Arabia). Those numbers are certainly alarming as they approximate the real scale of the problem. However, not meeting the discrimination criteria does not necessarily mean that anti-atheist prejudice is entirely absent in a given country. A particularly fitting example would be the United States of America, which placed 32nd with one *systemic discrimination* (due to preferential treatment of religious institutions), one *mostly satisfactory*, and two *free and equal* marks in the criteria mentioned above.[3] Despite this seemingly decent result, atheists are still branded as the other and marginalized in the American society. For example, as Cragun, Kosmin, Keysar, Hammer, and Nielsen (2012) report, 41.2% of individuals self-identifying as atheists and 44% of self-identified agnostics in the US faced discrimination in the last five years, mostly socially. Another instance is shown in a vignette study by Swan and Heesacker (2012), where an atheist target was evaluated significantly more negatively than a religious one, irrelevant of whether additional information was present or not. One of the possible explanations highlights the historically consolidated role of religiosity as an easily accessible index of one's capability to be both a good US citizen and a moral person (Barb, 2011; Edgell, Gerteis, & Hartmann, 2006). In

[3] Interestingly, in the previous version of the report (International Humanist and Ethical Union, 2018) the United States placed 8th in the top 10 of the best-performing nations.

America religious belonging is considered to be an unfailing cue of reliability, righteousness, and patriotism - crossing this symbolic boundary is nearly tantamount to inviting social exclusion. This connection is further illustrated by the results of the 2015 Gallup Poll, where atheists were second least favored presidential candidates (outranked only by socialists) in sheer contrast to Catholics for whom 93% of respondents would vote (McCarthy, 2015). The fact that the US non-believers repeatedly had to assert their rights in courts further complements this rather grim picture. Cases of Welsh v. Boy Scouts of America or Randall v. Orange County Council, to name just two, concerned the issue of discrimination of members by a private organization due to their atheism and both resulted in their expulsion (Weiler-Harwell, 2011). These are but examples - the actual list would be much longer. It seems that being an atheist in the United States is not an easy feat.

The Freedom of Thought Report is not the only evidence for global anti-atheism. A recent study by Gervais et al. (2017) shows that atheists are intuitively linked with extremely immoral deeds. Participants were asked to read a vignette describing a serial murderer with a history of harming both animals and humans, and pick an answer which, in their opinion, better fits the identity of that person. The first option was "a teacher" and the second one varied between the experimental conditions - it was either "a teacher and a believer" or "a teacher and a non-believer". Such a design was aimed at activating the representativeness heuristic, which comes down to making simplified judgments of classification based on object's similarity to the category or its prototypical example (Tversky & Kahneman, 1974). Applying it in decision-making might lead to committing a cognitive error called the conjunction fallacy. Let us consider two statements, 1) X is a student, 2) X is a student and a choir singer. In addition, it is known that X is in their twenties, eager to broaden their knowledge, share their experience, and that they like to perform and express themselves artistically. The conjunction fallacy would occur if one estimated the likelihood of the second

sentence being true to be higher than the likelihood of the first one (Tversky & Kahneman, 1983). Since, from a formal standpoint, it is not possible for the conjunction of two events to be more likely than either of these events, this indicates that similarity intuitions that come from representativeness heuristic override probabilistic cues in judgment when such an error is made. In line with that, committing a conjunction fallacy in the case of the discussed study, i.e., answering that the serial murderer in question is more likely to be both a teacher and an atheist, would mean that immorality is perceived as characteristic of non-believers. Taking that into account, the rates of such errors were used as an indirect index of the anti-atheist prejudice.

Gervais and colleagues conducted this experiment in 13 countries. One of the selection criteria was the average level of religiosity, and both secular states (like the Czech Republic) and nations with a believing majority (like the United Arab Emirates) were included. Despite this diversity, the results were quite consistent across all samples. Generally, the participants were more likely to assume that the serial murderer presented in the vignette was a teacher and an atheist, even though it was actually a less likely possibility. In addition, the relative risk of making an error by choosing the atheist option as compared to the believer option was equal to 1.96, which means that the probability was nearly twice as high. Thus, the experiment provides convincing evidence of a persistent anti-atheist bias. What is more, this tendency holds even for non-religious participants - atheists themselves attribute extremely immoral deeds to their ingroup members with a small exception of Finnish and New Zealand samples, where the results were not so conclusive.

This outcome is perhaps less surprising if one takes the Pew Research Center (2014) report into account. Data presented in the document concerns the worldwide prevalence of the conviction that believing in God is indispensable to act in a moral way. In 24 out of 39 countries (including United States, all African states, and most of the states from the Middle

Eastern, Asia/Pacific, and Latin American categories) in which the survey was conducted, the majority of citizens endorsed this statement. The percentage index exceeded 90% in Egypt, Jordan, Indonesia, Pakistan, Philippines, El Salvador, Ghana, and Nigeria. In other words, equating faith with morality is a common mental link occurring all over the world. This widespread conviction is almost synonymous with deeming atheists as incapable of moral behavior, and as such it is socially dangerous.

Although, when taken together, these results are highly disconcerting, they should be rather treated as an incentive for further intensive work on anti-atheist prejudice. There is no doubt the phenomenon is prevalent and needs to be examined in detail as the societies' religious structure continues to change, and the non-religious share of the population might be even smaller in the future[4] (Pew Research Center, 2015). The next section will serve as a transition from a global to a more case-focused perspective as I will concentrate on the anti-atheist attitudes in Poland.

Anti-Atheist Prejudice in Poland

According to the *Global Index of Religiosity and Atheism* (WIN-Gallup International, 2012), Poland is one of the most religious countries in the world, ranking 19th globally and 6th in Europe in that regard. As stated in the Polish Social Cohesion report (Główny Urząd Statystyczny, 2018), almost 81% of the population is religious, mostly Catholic, while only 3% of citizens declare themselves as atheists. Notably, Polish history is inseparably tied with the Catholic Church, and Baptism of Poland in 966 CE marks the starting point of this intricate and long relationship. Throughout the years, Catholicism unified and strengthened the nation during its numerous ordeals like the Swedish Deluge, the Partitions of Poland, and the subsequent loss of independence, or the communist governance after the Second World

[4] In line with the Pew Research Center's predictions for 2050, there will be an almost 10% increase in the overall number of people unaffiliated with any religion, but at the same time their global population share will decrease in comparison to 2010.

War (Eberts, 1998; Główny Urząd Statystyczny & Instytut Statystyki Kościoła Katolickiego SAC, 2016; Porter, 2003). The official proclamation of Jesus Christ as the King and Lord[5] on 19th of November 2016, with President Andrzej Duda attending the ceremony, was perhaps the most telling expression of this specific bond - and its culmination at the same time. Bearing that in mind, it is not surprising that religiosity has been an inherent part of the Polish national identity (Marody & Mandes, 2005; Porter, 2001). When asked about the factors contributing to being a "true" citizen, 64% of Poles declared that it is very or somewhat important to be a Catholic (Pew Research Center, 2017). Remarkably, out of the countries with Catholic majorities, this was the highest percentage. This belief translates into a stereotype of a "Polak-katolik" ("Pole-Catholic"), which excludes non-believing citizens from the Polish society (Zubrzycki, 2001). Czapnik and Omelan (2015) attribute this phenomenon to the quasi-nationalist character of the Roman Catholic Church and the historical role of Christianity as the defender of the Polish national identity. For centuries religiosity has been bonding citizens and solidifying their sense of belonging in times of need. Its society-cementing role is so powerful that it creates tensions regarding the constitutionally ensured separation of Church and State (Hierlemann, 2005). Though it would be an exaggeration to say that Poland is a confessional state (Szewczyk, 2013), religion is undoubtedly influential when it comes to public services, for instance health care[6] or

[5] The act of recognition was prepared by the Polish Bishops' Conference (Konferencja Episkopatu Polski, 2016). It states that "we Poles stand before You [together with our spiritual and secular authorities] to acknowledge Your Dominion, submit to Your Law, entrust and consecrate our Homeland and the whole Nation to You." There is no direct reference to Jesus Christ as the King of Poland, though, and Bishop Andrzej Czaja, the chairman of the Team for Enthronement Movements, denies such an intention was behind the ceremony or that it has any political significance to it. Despite that, this act is still often interpreted as the official enthronement of Jesus Christ, which can be seen in both Polish (e.g., Kołodziejczyk, 2016; Telewizja Republika, 2016) and international media (e.g., Gerber, 2016; Info Chrétienne, 2016; Meyer, 2016; Woods, 2016). Another fact worth noting here is that Virgin Mary was proclaimed to be the Queen of Poland in an official act by King John II Casimir on the 1st of April, 1656.

[6] In 2014 approximately 3000 physicians, other health professionals, and students (amongst them the current Minister of Health, Łukasz Szumowski) signed the *Declaration of faith of Catholic doctors and students of*

education[7] (Łętowska, 2014). Therefore, atheists, being a minority in Poland, are in a rather difficult position by default.

In the recently published Ranking Index of the discrimination of atheists, humanists, and the non-religious, which is a part of the already mentioned *Freedom of Thought Report*, Poland placed 132nd out of 196 countries (where lower positions indicate stronger inequity; Humanists International, 2019). Multiple violations contributed to this state of affairs. One of the previous versions of the report mentions legal sanctions for blasphemy, religious education classes dominating schools, while access to ethics classes remains limited, complex procedures required for apostasy, religious privileges or tax exemptions for the Catholic Church (International Humanist and Ethical Union, 2015). Taking those factors into account, Poland received a severe discrimination rating. Moreover, as stated in the *Quality of Life in Poland* report (Główny Urząd Statystyczny & Urząd Statystyczny w Łodzi, 2017), 13.9% of respondents over 16 years of age think that atheists are discriminated, and 3.3% declare witnessing such acts.

Does this assessment translate into the Polish reality, and if so - how? To begin, let us take a look at the media discourse and the portrayal of atheists by religious and secular authorities. The first example comes from a prominent Polish priest, Marek Dziewiecki, a Doctor of Psychology and a university lecturer:

> God revealed Himself as the One who is Love. When a teenager or an adult tells me: Father, I do not believe in God, I say, oh, I feel sorry for you . . . . **Because you do not believe in love, then you will neither start a family nor have friends.** . . . If you do not believe in God, **you do not even have any intellectual capabilities to believe**

medicine on the sexuality and fertility of human beings, which condemns contraception, abortion, euthanasia, artificial insemination, and in-vitro fertilization. This led to a nationwide debate on the limits of conscientious objection.

[7] For example, religious education classes limited to Catholic content, difficulties in organizing ethics classes as an alternative to religious education classes, presence of religious symbols in schools, etc.

> **in love** because where would love come from? . . . "Father, some atheists also love." **But then the question is why**. If they believe we are animals, only highly evolved, and in the world of matter love does not make sense because in the world of matter there is a fight for survival and not a fight for being a gift for others, **so if some atheist loves, I say: why?** After all, it makes no sense from your perspective . . . . Because then you do something against nature. . . . **This is absolutely anti-nature, absolutely antimatter.** (Maskacjusz TV, 2016, originally recorded in 2013)

Words similar in tone, but much rougher, come from another Catholic priest, Janusz Chyła, who tweeted: "Without reference to God, man is reduced to an animal level." (Chyła, 2018). These statements picture atheists as unable to love or sustain stable interpersonal relationships as well as presuppose that being human is realized only through contact with a deity. In a metaphoric consequence, non-believers are deprived of humanity by the very fact of their lack of faith.

Another category of quotes is composed of statements suggesting that values professed by atheists are not compatible with those shared in Poland or that they are directly opposing Polish morality itself. In one of her articles, Beata Mateusiak-Pielucha (2016), a Member of the Polish Parliament, wrote the following about the immigrants: "But we should also require atheists, Orthodox Christians or Muslims to declare that they know and commit themselves to fully respect the Polish Constitution and the values considered important in Poland. Failure to meet these requirements should be an unequivocal reason for deportation." A quote by professor Piotr Jaroszyński, a philosopher and lecturer at the Catholic University of Lublin, serves as a further illustration of the case. While discussing the idea of removing the religious education classes from Polish schools, he said that "there will be no Poland without Christianity, this is clear. . . . their [Catholics'] funds are being used [by others], and what, maybe now we will be paying for atheists or these various LGBT movements, etc.,

whose aim is to destroy human morality." (Radio Maryja, 2019). Yet another Member of Parliament, Tadeusz Cymański, claimed that "If we were all believers, there would not be this Polish-Polish war." (TVN24, 2018), pointing at the non-believers as the nation's bad apples. Perhaps the most extreme example is the statement of Rev. Dariusz Oko, which he made while commenting on the forthcoming celebrations of the "Days of Atheism" in Warsaw. He noted that "the most hellish place on Earth right now is North Korea, where atheists have ruled for 70 years . . . . This is atheism, and if we are talking about atheism, then we have to remember that atheists are among the greatest criminals in history. It is estimated that the number of communism's victims is more than 150 million people." (TVN24, 2015). It is a clear attempt to further demonize the non-believers by equating them to a societal threat.

As was already mentioned, some remarks go even further by drawing an association between being a rightful citizen of Poland and belonging to the Roman Catholic Church, strengthening the simplified image of a "Pole-Catholic". For instance, Archbishop Stanisław Gądecki said that "Whoever is free as a Christian and does not succumb to those earthly pursuits of this world, she/he is automatically the best citizen of the Commonwealth [Poland]." ("Abp Gądecki dla KAI", 2018) or that "so far faith and Polishness seem to be related to each other for life and death." ("Abp Gądecki", 2016). Of course, one might say that those statements are only unfortunate exceptions and do not reflect the public opinion. There is, however, no denying that the stereotype of a Catholic Pole is strongly present in the Polish media. Perhaps it is then no wonder that Polish students claimed to be the least socially distant (as measured with an instrument based upon the Social Distance Scale, Bogardus, 1925) from Catholics[8] (Sztejnberg & Jasiński, 2015).

[8] Participants had to evaluate social distance with regard to as much as 65 social groups, divided into 17 categories, e.g., religion, nationality, education, etc.

The quoted statements have been made only over the past seven years, the last one as recently as January 2019. Words like these are getting increasingly common in the media discourse, and what is particularly distressing is that they come from religious and political authorities. Though these statements are only opinions of single individuals, they still might have a strong influence on the citizens as they position atheists as the "other", those who do not share the national Catholic identity. Non-believers are portrayed as potential criminals, transgressors with no moral boundaries or simply as those who cannot love and meaningfully relate to others. Here, it is important to point out that though examples of such statements on atheists are plentiful, no systematic research on the subject has been conducted so far.

Yet, anti-atheist language in the media is not the only expression of prejudice in Poland. One has to mention the case of the Parliamentary Team for the Prevention of the Atheization of Poland, operating between 2012 and 2015. Although only 15 meetings took place, the group managed to leave its mark in the media, for instance by inviting already mentioned Rev. Prof. Dariusz Oko to the Parliament for a lecture, during which many controversial remarks about homosexuals and gender ideology were made. Its other activities included reporting the wounding of religious feelings to the Prosecutor's Office[9], releasing statements on events related to religious discrimination or acting in defense of the Catholic TV channel, TV Trwam. Probably the most important project carried out by the team, in cooperation with Catholic journalists and activists, was the "Stop Atheization" Congress held in 2013. The main aim was to show opposition to "aggressive atheism" and protest against, among others, "atheistic provocations", "moral relativism", and "stigmatization of patriots" ("Przesłanie Ogólnopolskiego Kongresu Katolików", 2013). Interestingly enough, Jarosław

[9] One of the examples is the case of Jacek Markiewicz and his video called *The Adoration of Christ*. It was exhibited in the Ujazdowski Castle Centre for Contemporary Art in Warsaw and portrayed a naked man (the artist himself) caressing a sculpture of Christ. The offence notification filed by the Parliamentary Team stated that the artist's intention was to wound Christians' religious feelings.

Kaczyński, the chairman of the Poland's ruling party, Prawo i Sprawiedliwość (Law and Justice), was one of the speakers. Parallel to these macro-level examples of discrimination and negative attitudes, there are also many less "spectacular" manifestations of prejudice. For instance, professor Zbigniew Mikołejko, a philosopher of religion, mentions having to justify one's atheism, because not believing is still seen as something rather peculiar (Majak, 2015). Another quite interesting illustration of this case is the fact that in 2017 two handbooks on how to deal with atheists were published in Poland ("Cała prawda o nędzy ateizmu", 2018), even though some say there are hardly any "true" atheists anymore (Brzezińska-Waleszczyk, 2015). This shows somewhat contradictory attitudes towards non-believers in the Polish Catholic Church and confusion regarding how to approach them, which further hinder mutual relations.

Finally, let us take a look at Polish atheists' own experiences. An impressive mixed-methods study by Radosław Tyrała (2014) offers unique insight into their stories. The quantitative strand of the study, a survey of 7,541 participants, shows that revealing their lack of faith is mostly not problematic for non-believers in Poland. 62.1% of respondents declared no troubles with that as it is usually connected with a feeling of pride. However, they report difficulties in contacts with their parents (38.4%) and extended family (28.3%). One of the very frequent issues is the baptism of a newborn child. Out of the 32.7% of non-believers who have children, 24.1% christened them. A common reason behind this somewhat contradictory behavior is being pressured by one's family and wanting to avoid arguments. Finally, when asked about their overall experiences as atheists in Poland, 23.9% declared that admitting to the lack of belief made their life a bit more difficult, while 9% said that it definitely complicates living. Additionally, according to the Equal Treatment Report (Antosz, 2012), 14% of respondents who are acquainted with atheists declare that the non-believers that they know have been discriminated in Poland due to their lack of faith.

Taking in mind the specific political and religious atmosphere of the country as well as non-believers' own perceptions of discrimination, studying anti-atheism in Poland makes a quite interesting and hopefully convincing case, and will address some of the research gaps.

Studies on Anti-Atheist Prejudice - An Overview

In this part of the theoretical introduction of the dissertation, I will present an overview of the literature of the subject so far. To ensure clarity, the chapter will be divided into thematic sections.

The relative absence of anti-atheist prejudice in the social sciences literature until the 2000s is rather baffling, having in mind how prevalent this phenomenon is, as it was just shown in the previous sections (Brewster, Robinson, Sandil, Esposito, & Geiger, 2014). One of the earliest studies, if not the first one, was published only in 2006 by Edgell et al. The authors analyzed attitudes towards the non-believing minority in the United States. Among many other variables, two dimensions of group acceptance were measured: public and private, respectively operationalized by the following items: "Now I want to read you a list of different groups of people who live in this country. For each one, please tell me how much you think people in this group agree with YOUR vision of American society." and "People can feel differently about their children marrying people from various backgrounds. Suppose your son or daughter wanted to marry [a person in given category]. Would you approve of this choice, disapprove of it, or wouldn't it make any difference at all one way or the other?" Respondents were asked to express their stance towards a variety of groups: religious, ethnic, and racial. In the end, atheists turned out to be the least accepted of them all, both in public and private dimension. 39.6% of respondents thought that non-believers do not share their vision of the country (with Muslims on the second position, with 26.3%), while 47.6% of the surveyed declared they would disapprove of their children's decision to marry a non-believer (again followed by Muslims, with 33.5%). Subsequent logistic regression analyses showed

that lack of public and private acceptance of atheists is connected to higher religious involvement, a belief in religious determinism as well as lower religious diversity among one's friends. While interpreting the results, the authors underlined the significance of the connection between religiosity, morality, and "good" citizenship that is deeply rooted in the American society, a link already demonstrated for the Polish context. Religiosity is seen as the antecedent of morality, which in turn is necessary to be a good citizen. As a result, those who do not believe in any higher entity eventually become outsiders, because they do not share the American values and American vision of the motherland. The authors also pointed out that the growing religious diversity does not necessarily mean higher tolerance, but rather leads towards stronger salience of the non-believing outgroup, hence the more pronounced prejudice.

One could say that this study paved the way and made the scientific community realize that anti-atheist prejudice is a real issue that needs to be examined closely. However, the psychological literature on the subject had to wait until 2011 as only then Gervais, Shariff, and Norenzayan published their ground-breaking paper on the topic. Thereby, the central role of distrust in anti-atheism has been solidified (Gervais, 2013). In the first subsection of this chapter, I will present studies that investigate lack of trust towards non-believers.

Distrust and How to Mitigate Its Effects

In one of the first papers on anti-atheist prejudice, Gervais et al. (2011) hypothesized centrality of distrust in anti-atheism and tested this assumption across six studies. In Study 1 participants were asked to evaluate atheists, gay men, and people in general in terms of attitude (measured with a feeling thermometer), distrust, and disgust. In line with predictions, atheists were perceived as less trustworthy and less disgusting in comparison to gay men. In addition, they were evaluated less positively compared to both other target categories.

Moreover, distrust was found to mediate the link between belief in God and negative attitude towards non-believers. Studies 2, 3, and 4 utilized the conjunction fallacy task (Tversky & Kahneman, 1983)[10]. In each of these studies, respondents' task was to read a vignette and then decide which of the available answers best describes the individual presented in the short text. Study 2 portrayed a man who pretended to leave his insurance information after hitting a parked car only because he was seen by bystanders as well as kept the money from a wallet he had found on the street. Participants could choose between two answers: "a teacher" and "a teacher and x", x being Christian, Muslim, a rapist or an atheist, depending on the condition. An identical vignette was employed in Study 3 along with a second one, which emphasized the unpleasantness of the described person and did not mention any behavior which could elicit untrustworthiness. Similarly, two options could be chosen: "a teacher" or "a teacher and x", where x was either an atheist or a homosexual, resulting in four conditions in total (distrust-atheist, unpleasantness-atheist, distrust-homosexual, unpleasantness-homosexual). Lastly, Study 4 again utilized the vignette from Study 2, the only difference being that the person described was now female. Here, the answers were: "a teacher" or "a teacher and x", with x once again differing between conditions (a Jewish person, a feminist or an atheist). Across all these variations, an untrustworthy individual was more often thought to be an atheist rather than a Christian, a Muslim, a homosexual, a Jew or a feminist. Moreover, Study 2 showed no difference in conjunction errors between the atheist and rapist targets, while in Studies 3 and 4 stronger belief in God was found to coincide with a higher likelihood of conjunction errors.

Study 5 employed two IAT procedures, which were aimed at measuring implicit distrust and general dislike of non-believers. As predicted, both distrust and dislike were significantly implicitly associated with atheists. In addition, a strong positive correlation

[10] See pp. 6-7 for an explanation.

between belief in God and distrust was found. Lastly, Study 6 measured implicit prejudice in a situation of choosing a potential employee for a job requiring high trustworthiness. Results demonstrated a preference for religious candidates over atheist ones if the job in question was a daycare worker. This preference was significantly predicted by belief in God, but not authoritarianism.

These findings come with weighty implications. Firstly, distrust emerged as a core component of anti-atheist prejudice. Studies which employed conjunction fallacy tasks provided evidence for untrustworthiness being seen as a trait representative of non-believers. Strikingly, in Study 2 atheists were evaluated no different than rapists in that regard. Secondly, belief in God appears to be a strong correlate of atheist distrust and, as a result, negative attitude towards atheists. This extensive analysis, an impressive endeavor to investigate the intricate phenomenon of anti-atheism, has laid the ground for a new branch of research.

One of the distrust research strands involves a political context. Franks and Scherr (2014) investigated political prejudice in the United States. First part of the study required participants to read a vignette, which presented a male candidate for the House of Representatives. The description was nearly identical across four conditions - the only information that varied was whether the man was a white/black heterosexual Christian, white homosexual Christian or white heterosexual atheist. Having read the short text, participants had to estimate the likelihood of voting for that candidate and his trustworthiness as well as the level of elicited disgust and posed threat. Christian respondents were less likely to vote for an atheist candidate as compared to white heterosexual or homosexual Christian or black heterosexual Christian candidates. Moreover, atheists were also perceived as the least trustworthy by believers. Subsequently, Franks, Scherr, and Gibson (2019) extended upon these results and analyzed the issue of stigma-by-association, which refers to the situation

when one is being subjected to discrimination due to the very fact of being related to the discriminated group, although not belonging to it oneself. In line with the hypotheses, politicians do not have to be atheists to suffer from the effects of anti-atheist prejudice. It is enough if they express pro-atheist attitudes (even if they are Christians) or if their picture is accompanied by words and symbols connected to atheism. Across three studies, candidates presented in such a way (either implicitly or explicitly associated with atheism) were significantly less trusted and less likely to be voted for compared to candidates with no such relationship implied. In turn, Franks (2017) examined factors which could possibly contribute to diminishing the political prejudice towards atheists across three vignette studies, similar to the ones described above. Including information on secular policy that the candidate endorsed (e.g., defending gay rights) resulted in both higher support and trust for the non-believing candidate as compared to when no such information was provided. Interestingly, this effect was present regardless of whether the candidate was Christian or not. Moreover, when the atheist candidate was presented as leading in the polls, their ratings of morality, trust, and readiness to vote for them rose. A paradoxical religiosity effect[11] emerged as well, as participants were more eager to vote for the atheist candidate when their opponent was a strong theocrat.

Edgell, Hartmann, Stewart, and Gerteis (2016) replicated and extended the original study from 2006. Again, there were two main items measuring public and private distrust of a range of social groups in the United States ("This group does not at all agree with my vision of American society" and "I would disapprove if my child wanted to marry a member of this group", respectively). On one hand, logistic regression analyses revealed that the stronger is

[11] In line with the paradoxical religiosity hypothesis, there are two dimensions of political candidates' religiosity that are relevant for the voters: personal (commitment/conviction) and political (the endorsement of fusing public policy with religion). While personal religiosity fosters support, candidates that manifest approval for church-state blending tend to be less endorsed (Sumaktoyo, Ottati, & Untoro, 2016).

the religion's personal significance, the belief that good American citizens need to be religious, and that atheists are immoral, the higher the odds of stating that non-believers do not share participants' vision of the US. On the other hand, a positive relationship between odds of objecting to the idea of one's child marrying a non-believer and personal importance of religion, frequency of participation in services, believing in the need of basing societal law on God-given rights as well as perception of atheists as immoral was found. These results not only show what relates to the two domains of non-believer distrust, but also point out to their close connection to perceived morality. LaBouff and Ledoux (2016) demonstrated that both lack of trust towards atheists and religious fundamentalism negatively predict atheist allophilia, that is, a positive attitude towards them. In their second study, participants in the experimental condition had to imagine that they interact with non-believers for 30 minutes, and that the atmosphere of the meeting is positive and enjoyable. When compared to the control condition, respondents exhibited lower distrust and higher allophilia towards atheists, which shows a positive effect of intergroup contact.

Atheist distrust was also investigated in a judicial context. Audette and Weaver (2015) conducted an experiment in which participants were presented with a court case concerning a Nativity scene exhibited on a public property. The information about the judge giving the verdict was manipulated across the four conditions. In the two control groups, only the final decision was mentioned (upholding vs. repealing the Nativity display). However, in the experimental conditions, respondents could also get to know what the religious identity of the judge is (Christian judge upholding the display vs. atheist judge repealing the display). The results show that respondents were significantly less trusting of the legitimacy of the court's verdict when it was revealed that the judge is an atheist, but there was no effect when he was presented as a Christian.

Would this distrust persevere if one were to provide evidence that secular monitoring (as opposed to divine one, see pp. 37-38) is also efficient in inhibiting immoral conduct? Gervais and Norenzayan (2012b) explored this possibility in a series of three experiments. In the first one, a promotional video for a police department picturing its successes was used as a priming stimulus. Watching it significantly reduced the atheist distrust, but not the general prejudice against gays, Muslims or Jews, as compared to having seen the neutral recording in the control condition. The other two experiments utilized a sentence unscrambling task to prime secular authority with words like "police" or "court". Again, only atheist distrust was significantly lower - there was no effect of priming on anti-gay prejudice or homosexual distrust. Further evidence was provided by Norenzayan and Gervais (2015). The authors calculated country-level measures of political atheist distrust (based on World Values Survey data) as well as indices of secular rule of law. Two regression models demonstrated a mitigating effect of effective secular authority on political atheist intolerance among believers in multiple countries around the world[12]. However, those are not the only possible means of diminishing discrimination against non-believers. Gervais (2011) uncovered a negative relationship between anti-atheist prejudice and perceived prevalence of atheists. In comparison with participants who had to write about their favorite food, respondents who read a short paragraph about how prevalent atheists actually are (around 20% of the population) exhibited lower levels of implicit atheist distrust in an IAT. Such a finding shows an opportunity for simple and easy to perform prejudice reduction interventions, e.g., by disseminating statistics regarding the atheist population share.

Atheist Stereotypes

Another strand of research is devoted to atheist stereotypes. In a study by Brown-Iannuzzi, McKee, and Gervais (2018), a few images were presented to the participants,

[12] Model 1 included 31 countries, while Model 2 contained 39.

among them an average image of an atheist and a theist (derived from the classification phase with a different sample[13]). The task was to rate them with regard to certain characteristics like religiousness, warmth, likeability or trustworthiness. Results showed that an average image of an atheist was evaluated significantly less positive than an average theist one. Namely, the non-believer picture was deemed less trustworthy, moral, competent or even human, even though no information on religion/irreligion was provided. In the second study, respondents read a vignette depicting (im)moral behavior and had to choose which of the images (average atheist or average theist) showed the person that committed the act in question. As predicted, the atheist picture was chosen more often when unethical deeds were described, despite the fact that no information about the images (e.g., on religiosity) was provided in the task. Another study examined the perceptions of atheists in terms of narcissism and empathy (Dubendorff & Luchner, 2017). Participants' task was to read a short paragraph in which a college student presented themselves. There were six different versions, depending on gender and the condition (atheist, religious, control). After reading the text, respondents had to fill out three questionnaires, which measured narcissism and interpersonal reactivity, but they were asked to take the perspective of the person described in the vignette. Atheists were perceived as more narcissistic and less empathetic than believers or people whose religiosity was unknown.

In turn, prevalence and accuracy of the angry atheist myth, quite common in the United States, perhaps due to the persistent militant non-believer stereotype, was tested by Meier, Fetterman, Robinson, and Lappas (2015). Their extensive analysis spanned across seven studies. Study 1 required participants to evaluate atheists and theists in terms of anger,

[13] The atheist image was generated using a reverse correlation task (e.g., Solomon, 2002). Participants were presented with 400 pairs of pictures, created from a base image, which was a compound of four faces - a Black woman/man and a white woman/man. They were asked to indicate which of the pictures look more like an atheist or a religious individual, depending on the condition they were assigned to (Atheist vs. Religious). Then, the responses averaged by condition became the atheist and theist images.

while Study 3 utilized the same design, but included different target groups (gays and lesbians as well as people in general instead of theists). On average, atheists were seen as angrier than other groups. Moreover, this effect was greater for individuals with a stronger belief in God, as Study 3 additionally revealed. Study 2 was aimed at testing a similar hypothesis, but using an indirect measure, namely the IAT procedure. Respondents were tasked with sorting the displayed words into combinations of four categories (angry, calm, atheist, believer), e.g., atheist-angry, believer-calm or atheist-calm. As it turned out, categorizations were faster when participants had to choose between atheist-angry and believer-calm categories (i.e., stereotypical associations) in comparison to a choice between atheist-calm and believer-angry. In other words, these results supported the findings from Study 1 and 3. Taking that into account, Studies 4-7 were aimed at testing whether the perceived differences have basis in fact. However, non-believers and believers who took part in these surveys (N = 1,277 in total) actually did not differ significantly in terms of any of the anger measures employed (two scales of trait anger and one scale of state anger). Moreover, belief in God did not correlate with trait anger.

Harper (2007) analyzed the content of atheist stereotypes amongst religious students. Participants were presented with a list of 391 phrases, and their task was to indicate to what extent each of the them is a trait typical of non-believers. A simple measure of consensus (at least 50% of respondents deeming a term as typical of atheists) was employed, along with chi-square and standardized residuals analysis. Subsequently, an exploratory factor analysis was performed on the retained items to identify stereotype subtypes. As a result, six distinct factors emerged, the strongest of which was the “skeptics” one (see Table 1).

Table 1

Subtypes of Atheist Stereotypes Amongst Religious Students (Harper, 2007, p. 546)

Category	Phrase
Judgmental cads	Hard-hearted, unbelievers, hard-headed, judgmental
Cynical critics	Cynical, critical, argumentative, opinionated, headstrong
Hedonistic bohemians	Daring, rebellious, pleasure-seeking, mysterious, radical
Skeptics	Faithless, non-spiritual, not religious
Straightforward individualists	Straightforward, independent, individualistic
Seekers	Searching, looking for something, self-seeking, questions everything

Finally, Saroglou, Yzerbyt, and Kaschten (2011) examined whether the way in which atheists and religious individuals are stereotyped overlaps with their own perception of that stereotype, a phenomenon referred to as the meta-stereotype. Therefore, the respondents' task was to evaluate a set of behavioral items twice: first to express how they perceive the outgroup, and then to indicate how they think their ingroup is seen by the outgroup. The answers were then collapsed into measures of eight distinct characteristics. With regard to altruism, conservatism, hedonism, and impulsivity, believers' and non-believers' meta-stereotypes converge. Just as atheists expected, religious individuals perceive them as impulsive, hedonistic as well as less conservative and altruistic. However, significant differences in believers' stereotype of non-believers and non-believers' meta-stereotype were also found. It appears that atheists tend to misjudge the actual strength of the stereotype, and they presume that religious individuals see them as exhibiting lower levels of conservatism, but a greater degree of both impulsivity and hedonism than people of faith actually ascribe to them.

Atheists' Immorality

Atheists are intuitively associated with a lack of morality. The first evidence for that connection was provided by Gervais (2014) in a series of five experiments that employed a conjunction fallacy task (see pp. 6-7). After having read a vignette that portrayed a person committing a grave moral violation (e.g., serial murder), participants had to choose which of the two options presented they found to be more likely. The first answer was always "a teacher" and the second varied between conditions and studies[14]. The results were consistent across all five studies. Namely, committing a conjunction error by choosing an atheist option was more likely than committing an error by choosing other available options. Effectively, these findings robustly showed how immorality is perceived as characteristic of non-believers in an American setting. A follow-up study (Gervais et al., 2017, see pp. 6-7) provided evidence for this association in 13 countries.

In turn, 36% of surveyed Americans think that non-believers have no moral backbone, while 22% of respondents attribute a greater likelihood of committing crimes to them (Edgell et al., 2016). As a consequence, atheists might be seen as a danger to values held dear by believers. This assumption was tested in two studies (Cook, Cottrell, & Webster, 2015). The first one investigated perceptions of threat (general as well as with regard to health and values) and elicited emotions in reaction to atheists, students, Muslims, individuals with HIV, and gay men[15]. Non-believers were perceived as the greatest threat to values. Additionally, atheists also elicited the strongest moral disgust response. In the second study, participants were presented with a paragraph on progressing moral deterioration amongst students or a text which implied no threat to values. Then, they evaluated four groups (similar as in Study

[14] E.g., in Study 2 "a teacher" was paired with "does not believe in God" or "Buddhist", while in Study 5 participants could choose from "a teacher who does not belong to any church and does not believe in God" or "a teacher who belongs to a church but does not believe in God".

[15] Scores for Muslims, individuals with HIV, and gay men were averaged and treated as a single category of reference.

1 with the exception of Muslims) in terms of elicited emotions. Respondents who read about moral decline displayed a significantly stronger negative emotional response to atheists as compared to students. Although no difference was found when comparing non-believers with the average of gay men and people inflicted with HIV, the effect of manipulation via value-threat priming emerged only if the target group was atheists. As such, these results provide further evidence for the significant connection between the perceived threat to values and anti-atheism.

Wright and Nichols (2014) conducted two vignette studies to test whether the same deed would be evaluated differently depending on religiosity of the person carrying it out. The content of the paragraph presented to the respondents was manipulated between conditions. The individual described therein was a Christian or an atheist (secular humanist), who engaged in (im)moral behavior, either only once or over some period of time (e.g., a one-time affair). The analyses revealed that if the vignette depicted an immoral deed, a non-believer was thought to feel significantly less negative about it than a believer. Namely, participants attributed both lower motivation to correct the action and lower guilt to the atheist. Moreover, behaving immorally was thought to be characteristic of non-believers. Another series of studies (Galen, Smith, Knapp, & Wyngarden, 2011) explored the link between the level of religious fundamentalism and perceptions of (non-)religious individuals. Participants were asked to evaluate a female student with regard to likeability and morality after familiarizing themselves with some written background information and watching a video in which she was interviewed. In the first two studies, information about her religiosity (or lack thereof) was given explicitly, while in the last study symbols (a T-shirt with a "Jesus fish" or "Darwin fish") were the only cue. Regardless of how target's religiosity was presented, individuals exhibiting high religious fundamentalism were more likely to perceive the irreligious target as immoral and less likeable.

Anti-atheist prejudice has been also investigated from a moral foundations theory[16] perspective. Simpson and Rios (2016) analyzed how believers and non-believers stereotype each other when it comes to moral foundations endorsement. In the first study, respondents were asked to fill out the Moral Foundations Questionnaire three times - according to their own point of view, from a perspective of a "typical atheist", and finally, through the eyes of a "typical Christian". In the Christian participants' perception, atheists affirmed each of the five foundations to a lesser extent than believers. In fact, significant differences were found for care, loyalty, authority, and sanctity, but not for fairness. Moreover, Christians thought that atheists endorse care and fairness to a lesser extent than they actually do, while overestimating non-believers' endorsement of loyalty, authority, and sanctity. This finding was extended in the subsequent qualitative study, where participants were to write about their perceptions of the outgroup's moral foundations instead of filling out the Moral Foundations Questionnaire. Christian perceptions of atheist loyalty tended to be more positive, but the trend was reverse for sanctity and especially authority. Simpson and Rios further examined this topic and analyzed the relationship between anti-atheism and perceived endorsement of moral foundations (2017). The first study used the already mentioned procedure and required participants to take the perspective of a "typical atheist" when filling out the Moral Foundations Questionnaire. Study 2 introduced a small variation, namely respondents had to react only to items pertaining to a single foundation (hence five conditions), then read a short paragraph demonstrating that this particular foundation is endorsed by atheists (or people in general, which resulted in 10 conditions in total). Finally, they were asked to read the items

[16] The moral foundations theory assumes the existence of at least five basic psychological systems that are the universal, intuitive bases of morality that organize responses to specific adaptive challenges (Graham et al., 2013; Haidt, 2012). It distinguishes between original triggers (stimuli for which the respective foundation was originally developed) and current triggers. Thus, care/harm was originally aimed at offspring protection, fairness/cheating was activated in situations that required cooperation and in risk of cheating, while loyalty/betrayal was helpful in dealing with competition by facilitating alliances. Next, authority/subversion fostered navigating through social ladder, and lastly, sanctity/degradation promoted contamination avoidance.

again and come up with two ways in which the aforementioned endorsement is expressed in daily life. Additionally, in both studies measures of anti-atheism were administered. The main finding was that perceiving care moral foundation as important for atheists was negatively connected to prejudice against them. These results were later replicated and extended into a cross-cultural context (Simpson, McCurrie, & Rios, 2019).

Three studies by Cowgill, Rios, and Simpson (2017) show how significant for atheist self-image is the perception of their (im)morality. When non-believing participants were aware that their lack of faith is known to the fellow players of the Dictator Game (both religious and non-religious), they exhibited no ingroup bias and evenly distributed the funds. However, in the second condition, where no information about religious (non)belonging was provided, the funds allocation was no longer equal. The authors propose that this specific atheist impartiality might be an attempt to escape the immorality stigma attributed to non-believers.

Functions of Anti-Atheist Prejudice

Belief in God can be a source of relief and reassurance in the unpredictable daily life. As the ultimate reference points, immortal supernatural deities provide a stable moral structure and help deal with ambiguity. Religiosity, understood as a relationship with such a God, might function as means to avoid uncertainty. In consequence, a threat to one's faith is also a threat to one's certainty - and as such it needs to be countered. Kossowska and Sekerdej (2015) proposed that prejudice against groups violating values is a coping response, aimed at mitigating the repercussions of this perceived threat. In their first study, a relationship between uncertainty avoidance and discrimination of groups violating public safety was partially mediated through belief in God (understood as inclusion of transcendence, see p. 74 for the description of the Post-Critical Belief Scale), but not through the way one makes sense of religion (either literally or symbolically). This effect was

replicated and extended in the second study, where measures of general intolerance against violators of social order were replaced with indices of discrimination of specific groups. This time, belief in God fully mediated the relationship between uncertainty avoidance and prejudice against homosexuals, adherents of religion other than one's own, and individuals of other sexes or races. Sekerdej, Kossowska, and Czernatowicz-Kukuczka (2018) continued this line of research and extended it to study anti-atheism. Participants (all of whom were Catholics) in the experimental condition were primed with the concept of ambiguity by having to answer a few items from the Intolerance of Uncertainty Scale (Buhr & Dugas, 2002). As the subsequent analyses revealed, uncertainty had a positive indirect effect on anti-atheist prejudice, which was mediated by the importance of religious behaviors and the extent to which atheists were perceived as a threat to values. Such an effect did not emerge for Black people, a group that neither poses a danger to religious values nor endorses them.

Kossowska, Czernatowicz-Kukuczka, and Sekerdej (2017) also investigated the role of dogmatism (either religious or non-religious) on prejudice. Participants were asked to complete a set of questionnaires, including measures of intolerance of uncertainty, dogmatic beliefs, and religiosity. Then, an uncertainty manipulation was employed and followed by assessment of prejudice against non-believers, homosexuals, Catholics, and pro-life advocates. As predicted, the link between dogmatic beliefs and anti-atheism was mediated by religious orthodoxy. However, a similar effect was found for dogmatic atheism as it mediated the relationship of dogmatic beliefs and anti-Catholic prejudice. This effect was especially pronounced in the uncertainty condition (as opposed to the control one).

Another follow-up study (Kossowska, Szwed, Czernatowicz-Kukuczka, Sekerdej, & Wyczesany, 2017) involved a physiological measurement of heart rate as an index of threat. After having been primed with slogans promoting atheism, participants could either express their prejudiced attitude towards non-believers (experimental condition) or did not have an

opportunity to do so (control group). Respondents who exhibited high levels of religious orthodoxy were not only significantly more negative towards atheists, but also had a stronger reaction to the atheist stimuli as their heart rate increased. What is also interesting, the elevated heart rate decreased after having been able to express prejudice.

Thus, it can be concluded that discussed studies strongly point towards threat reducing function of anti-atheist prejudice in religious individuals. As shown in the previous sections, non-believers are perceived as immoral and generally untrustworthy. In that sense, anti-atheism could be considered a maladaptive countermeasure for mitigating or avoiding the anticipated detrimental effects of interacting with atheists.

Examples of Other Studies

Of course, categories presented above cannot cover every published study on anti-atheism. Therefore, below, a few examples of other strands of research will be introduced to provide a broader overview of the state-of-the-art.

Bowman, Rockenbach, Mayhew, Riggers-Piehl, and Hudson (2017) analyzed undergraduates' attitudes towards non-believers on an impressive sample of 12,552 American students. As it turned out, Christian and Muslim students' stance on non-believers was less positive than that of an average student. A reverse trend was found for undergraduates belonging to other religions or non-religious, secular, and spiritual ones.

Simpson, Rios, and Cowgill (2017) investigated essentialist[17] beliefs about atheism in relation to anti-atheism. Across two studies, they found that anti-atheist prejudice is negatively correlated to naturalness and positively related to discreteness. This means that anti-atheism increases when one believes that atheists are only found in some places around the world (i.e., the group is not universal), and that believers and non-believers are two

[17] Psychological essentialism (e.g., Prentice & Miller, 2007) is a specific way of category processing, i.e., a belief in the "essence" that makes an object what it is (e.g., an essence of being a banana).

distinct and non-overlapping groups. Accompanying analyses in Study 2 revealed that those relationships are mediated by perceiving atheism as a threat to Christianity's cultural authority: partially in the case of discreteness beliefs and fully for naturalness ones. Additionally, a labeling effect was found. In the second study, participants were randomly assigned into "atheist" and "non-believer" conditions, which differed with regard to the labels employed in the measures. The comparisons showed that non-believers elicited more positive feelings than atheists, but at the same time they were considered to be more rigid in terms of their non-belief.

Shen, Yelderman, Haggard, and Rowatt (2013) examined connections between anti-atheism and post-critical beliefs (see p. 74 for the description of the scale), which can be defined by two bipolar dimensions: rigidity/flexibility (literal or symbolic interpretation of religious truths) and belief in God (understood as a scale of exclusion - inclusion of transcendence). As the results of the first study revealed, both of these aspects significantly predict anti-atheist prejudice: negatively and positively, respectively. In turn, the post-critical beliefs were found to be a partial mediator of the relationship between anti-atheism and religiosity in the second study.

It is important to note that studies on anti-atheism are mostly conducted in the United States. One of the rare exceptions is a paper by Giddings and Dunn (2016) in which negative attitude towards non-believers in England was examined in an experimental setting. The study employed a conjunction fallacy task, and the scenario used therein was adapted from Gervais et al. (2011, Study 2, see pp. 16-17). After reading the vignette, respondents were asked to choose one of the two options and indicate who was more likely to commit the depicted acts. Depending on the condition, the choice could be made between a teacher/an atheist teacher or a teacher/a religious teacher. Then, participants read information on the religious composition in England and Wales. Here, three different conditions were employed:

one with correct data, one showing the equality of religious and non-religious populations, and one showing that the non-religious are in fact a majority. The final part of the study required participants to provide the answer to the conjunction fallacy task again. As predicted, the error rates for "atheist" condition were significantly higher in comparison to "religious" condition. Moreover, the effect of information on religious composition emerged as the error rates for the second answer were lower.

Identifying the Research Gaps

Two focal themes of anti-atheist prejudice studies can be distinguished, based on the presented data: distrust towards non-believers and perceived atheists' immorality. Both of them are associated with religiosity, and both contribute to anti-atheist attitudes, but we still do not know what exactly drives this effect. It is important to highlight here that none of the studies so far attempted to analyze the connection between them in greater detail, but rather separately. Is it simply the fact of non-belief that leads to distrusting atheists or does it take a specific conviction grounded in one's religiosity? Is distrust the main factor driving anti-atheist prejudice? What constitutes the perception of atheist immorality? How does perceived immorality come into play? Does perceived immorality or perceived inability to behave morally lead to distrust? In the present dissertation I will take a closer look at these questions and address some of them by introducing the notion of meta-ethical beliefs.

Another point worth raising here is that these studies are usually restricted to capturing how religious individuals see non-believers, but do not take atheist perceptions of theists into account. Anti-theist attitudes are a rather uncharted territory, but need to be investigated to help us better understand the dynamics of this mutual religion-based prejudice. Which type of prejudice is stronger? Are all theists perceived similarly or does it depend on the denomination? What are the correlates of anti-theism? These are but a few questions that still await an answer.

Lastly, not so much a research gap, but surely a limitation, as was mentioned before, most of the studies are restricted to American samples. This poses a problem of geographical bias and lack of cross-cultural representativeness. Studies presented in this dissertation were conducted in Poland and provide insight into one of the most religious European countries.

Theoretical Bases of Anti-Atheist Prejudice Research

In this chapter I will introduce the theoretical framework, starting with the religious prosociality hypothesis, which is the focal point of anti-atheism research. Then, I will present the sociofunctional approach to prejudice. Lastly, I will propose an extension of the framework in the form of meta-ethical beliefs, bridging the gap between perceived immorality and pervasive atheist distrust.

The peculiar lack of trust towards non-believers is an issue which is now at the core of anti-atheist prejudice research. What makes atheists less trustworthy in the eyes of believers? Which of their opinions about non-believers map onto this lack of trust? Evolutionary psychology, the religious prosociality hypothesis in particular, offers possible answers to these questions.

Religious Prosociality

A fair share of *homo sapiens* history is connected to living in rather small communities, and the change is considered to have appeared quite rapidly. However, the exact process behind the emergence of large groups of humans is still a mystery. Living in a larger group provides a significant evolutionary advantage - not only does it facilitate activities which require joint effort (e.g., hunting), but it also enhances the capability to defend from predators. How did the process of transforming small groups into large ones unfold? How did mankind solve the issue of cooperation in a large group? What are the origins of prosocial behavior? These questions are not easily answered as reconstructing social dynamics of years past tends to be demanding. One of the difficulties in explaining this

advancement is understanding how social monitoring is maintained in larger and larger groups. To ensure stable cooperation, it is indispensable that group members supervise one another - having rules and norms will not suffice if no one adheres to them. Violations need to be punished to prevent free-riding on the common resources and to put an end to the "tragedy of the commons" (Hardin, 1968; Van Lange, Joireman, Parks, & Van Dijk, 2013). Interestingly enough, humans seem to be quite eager to engage in punishing others (Henrich et al., 2006; van Prooijen, 2018). However, the more numerous the group members, the costlier is the monitoring. Combined with the fact that with growing group population the efficacy of supervision decreases, one faces a difficult question: how to balance the costs of supervision with the threat of free-riding? How did our ancestors solve this dilemma?

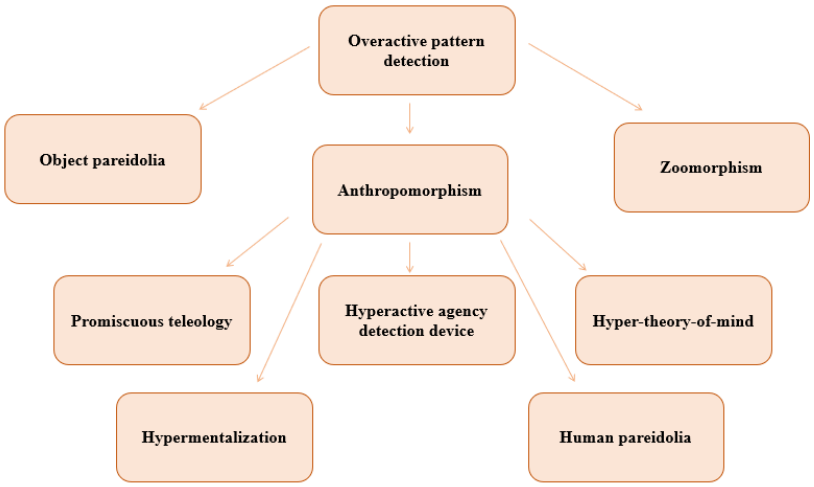
The religious prosociality hypothesis (Norenzayan & Shariff, 2008) offers a convincing answer to that question. Amongst the numerous theories unravelling the intricacies of prehistoric life and the origins of group living, this approach is especially relevant to the discussed issue of anti-atheism. The main argument is simple yet meaningful: religion promotes prosocial behavior, that is behavior which comes at one's cost and the benefit of the other. Evidence of this association is plentiful - it is widely accepted in the scientific community and no novelty on its own (Preston, Ritter, & Hernandez, 2010; Preston, Salomon, & Ritter, 2014; Stavrova & Siegers, 2014; for a theoretical review see Norenzayan et al., 2016). However, Norenzayan and Shariff offered a critical analysis and synthesis of the current evolutionary approaches to religion in an attempt to explain its emergence. In particular, they emphasized the importance of cognitive mechanisms of agent detection and reputational sensitivity, which I will briefly introduce below.

The first of those tendencies refers to a readiness to assume involvement of an agent when one faces an ambiguous situation (for example assuming a predator is nearby while hearing a sound from an unknown source), otherwise known as Hypersensitive Agency

Detection Device (Barrett, 2000; Green, 2015; Keil & Newman, 2015; Maij, van Schie, & van Elk, 2019). This hypersensitivity is considered to be evolutionary adaptive as overestimating the possibility of danger is more effective than underestimating it, even if it sometimes causes false alarms. Interestingly, overascribing agency (measured by a total score in a performance task and a self-report scale) was found to be positively correlated with immanence religious orientation, which is a propensity to cross boundaries and experience unification (Petrican & Burris, 2012). Closely related to this mechanism are the phenomena of pareidolia (identifying random patterns as known shapes or sounds, e.g., seeing a face in a socket or hearing words in a song played backwards; Liu et al., 2014; Sheen & Jordan, 2015; Taubert, Wardle, Flessert, Leopold, & Ungerleider, 2017), anthropomorphization of nature (endowing natural occurrences or objects, e.g., thunderstorms or volcanoes, with human traits, Barrett & Keil, 1996; Guthrie, 1995; Norenzayan, Hansen, & Cady, 2008), and mentalization (being able to understand others' and one's own state of mind in terms of intentionality, Norenzayan, Gervais, & Trzesniewski, 2012; Willard & Norenzayan, 2013; Wlodarski & Pearce, 2016). Figure 1 presents an overview of the associated tendencies as the ones mentioned are only a part of the picture.

Figure 1

Cognitive Mechanisms Linked With Pattern Detection (Based on Varella, 2018)



The second mechanism mentioned by Norenzayan and Shariff, sensitivity to reputation, enables humans to predict whether cooperation will end in a desirable outcome for parties involved (Barclay, 2015) and serves as a self-regulation system (Arfer, Bixter, & Luhmann, 2015; Pfattheicher, 2015). Reputation is understood here in a narrow sense - it refers to one's status based on how they behaved in situations that required helping others, reciprocity or trustworthiness rather than a general opinion about them (Milinski, 2016). Using this specific type of knowledge, it is easier to avoid interactions with individuals prone to free-riding by analyzing their "social history" as well as restrain oneself from actions that might be seen as selfish. As reputation spreads very quickly, be it through indirect (e.g., gossip: Piazza & Bering, 2008; Wu, Balliet, & Van Lange, 2016) or direct interaction (Molleman, van den Broek, & Egas, 2013), it turns out to be a useful cue in navigating through social landscape and facilitates group functioning (Faber, Savulescu, & Van Lange, 2016; Lyle & Smith, 2014; Suzuki & Akiyama, 2005). This tendency can be seen in children as young as five years old (Engelmann & Rapp, 2018; Engelmann, Herrmann, & Tomasello, 2018). Moreover, it is not limited to humans (e.g., Herrmann, Keupp, Hare, Vaish, & Tomasello, 2013; Kundey et al., 2011; Pinto, Oates, Grutter, & Bshary, 2011), though it is especially pronounced in our species due to language, which enables us to disseminate information with ease. What is also interesting, reputational concerns extend to the moral domain as well (Sperber & Baumard, 2012) - we feel we are being watched not only by fellow humans, but gods alike.

It needs to be underlined that the primary adaptive functions of these cognitive mechanisms, described above, are unrelated to religion (Mercier, Kramer, & Shariff, 2018). At the same time, their by-products in the form of specific religious intuitions (e.g., seeing divine intervention in daily events due to agency overattribution) made emergence of religious belief systems possible. In turn, these systems facilitated a substantial change in

group size, partially due to fostering prosociality, hence providing a direct evolutionary advantage. Effectively, the burden of excessive social monitoring and punishing free-riders was lifted from humanity's shoulders and outsourced to supernatural beings, a special category of those, to be exact. Known under the common name of Big Gods (Norenzayan, 2013), those deities, apart from the usual divine attributes of omnipotence, omniscience, and omnipresence, are characterized by a particular interest in the moral behavior of humans. Not only are they vividly interested in morality of their human subjects, they also react by either punishing the transgressors or rewarding the righteous (Saleam & Moustafa, 2016). No action escapes their attentive eyes, no thought can stay hidden. Their watchfulness is of particular importance as those who feel observed seem to behave more prosocially, which is at the center of religious prosociality hypothesis. This relationship has been investigated by Shariff and Norenzayan (2007). In the first study, participants were assigned to a prime vs. no prime condition. The priming task consisted of 10 sentences to unscramble, five of which included a God-related word (e.g., "divine"). Then, respondents took part in an anonymous Dictator Game, where they could decide how many coins to keep to themselves, having in mind that the other player will receive whatever is left. The second study had a similar design. However, the no prime condition was replaced with a neutral prime, and one more condition was added, a secular prime (where words associated with secular authority appeared, e.g., "jury"). The results showed an increase in generosity towards strangers in an economic game after being primed with the concept of God in comparison to neutral or no prime experimental conditions. A priming procedure was also employed by Gervais and Norenzayan (2012a) in a series of three studies. The findings demonstrated that making believers reflect upon God via explicit priming results in heightened public self-awareness, while implicit priming (via sentence unscrambling) leads believers to respond in a socially desirable way. Remarkably, this outcome is not limited to divine supervision only. A field

experimental study by Bateson, Nettle, and Roberts (2006) showed that placing an image of eyes in a community room increased donations to the common funds for drinks when compared to days where only a picture of flowers was present on the wall. Some of the inconclusive evidence and inconsistencies concerning this effect were addressed by Manesi, Van Lange, and Pollet (2016). Participants were asked to complete a typing task. They were informed that overall there were 15 trials, but they were free to finish as many as they wished, and the rest would be delegated to another respondent. Across three studies, stimuli that were displayed on the screen along with the task differed. In the first one, participants saw watching eyes, closed eyes or flowers. Study 2 replaced closed eyes with an averted gaze, while in Study 3 not only was the gaze averted, but the person in the image also turned their head to the side. The results suggest that the watching eyes have to be alert (not closed or turned away) - only then prosocial behavior can follow. Another field experiment was conducted to further test this relationship (Kelsey, Vaish, & Grossmann, 2018). Four different images were placed on a sign asking for donations next to a donation box in a museum. These were: watching eyes, a nose, mouth or a chair. Results obtained over the course of 28 weeks demonstrated that it is specifically eyes, but not a picture of chairs or a nose (that is alternative hints of human presence) that encourage visitors' donations. In other words, whether supernaturally or symbolically "the watching eyes" seem to promote prosociality.

One of the principles of Norenzayan's (2013) Big Gods is that *religious actions speak louder than words*. This refers to the phenomenon of religious costly signaling (Sosis & Alcorta, 2003), which is closely related to the watching eyes effect as well as reputational concerns. This term describes ritual behaviors which come with individual short-term sacrifices (e.g., time) but grant long-term group benefits in return (Sosis, 2003). These activities can range from fasting or abstaining from consuming certain foods to extreme cases like mutilation (e.g., self-flagellation) or firewalking. They serve as means to show fellow

believers one's level of commitment and due to their repeated character reinforce one's faith. Not only does costly signaling enhance individuals' self-control (*ritual well-being* as proposed by Wood, 2017) or mental health (Dengah, 2017) but also prevents free-riders from accessing resources as these behaviors are hard to fake. Most importantly though, it stimulates prosocial behavior (Smith & Bliege Bird, 2005; Soler, 2012; Xygalatas et al., 2013) and trust (even towards members of different faith - Hall, Cohen, Meyer, Varley, & Brewer, 2015). Power (2017) approached this issue from a different angle and tested whether individuals who engage in religious signaling are truly perceived as particularly devoted by others. Over the span of 20 months she studied two South Indian communities with both Christians and Hindu inhabitants and observed that different benefits were associated with distinct types of religious activities. Those who engaged in long-term practices (i.e., worship on a regular basis) were more likely to be seen as hardworking, charitable, helpful, persuasive, and devout. On the other hand, taking part in festive rituals (referred to as dramatic) was connected with higher likelihood of being recognized as strong and dedicated. Therefore, though continuous religious signaling brings more reputational benefits, partaking in rarer but more spectacular manifestations of faith can be beneficial as well, especially if one does not yet have a strong position in the community. To sum up, one can say that engaging in costly expressions of faith is profitable on both individual and group level.

Miraculous vigilance is not the only trait of Big Gods that is significant in restraining antisocial behavior. As divine watchfulness alone does not imply any sanctions, it is accompanied by the ability to swiftly penalize transgressors. The *punitive god* narrative is potentially quite an effective deterrent if one considers the eternal, inevitable, and irreversible character of the supernatural sentence. Though it sometimes paints a fairly malevolent picture of God, it is often employed by religious authorities, among others. For instance, let us take a look at a rather extreme historical example. In 1741, the times of the American Great

Awakening, a revivalist pastor Jonathan Edwards said the following words in his famous sermon titled *Sinners in the Hands of an Angry God*: "They [the wicked] deserve to be cast into hell; so that divine justice never stands in the way . . . . Yea, on the contrary, [divine] justice calls aloud for an infinite punishment of their sins." (Edwards, 1741/2010, p. 36). Following this line of thought, Johnson and Krüger (2004) proposed that fear of supernatural punishment is what helped cooperation flourish. It is important to note that this hypothesis expands the watching eyes effect by explaining prosocial behavior even in situations where reputational concerns are non-existent (e.g., interactions between strangers which are one-time only). The empirical evidence supporting this assumption is already quite impressive. For example, there is evidence for the relationship between cheating and perceptions of God (Shariff & Norenzayan, 2011). Apart from completing questionnaires on image of God (loving vs. punishing, see p. 73) and religiosity, the task required the participants to solve some simple math problems. In fact, the solution always showed up right after the actual question was displayed, which, to avoid suspicion, was framed as a program malfunction. Respondents were informed that this would happen and asked to press the space bar to avoid seeing the answer. Consequently, not pressing the button was used as a cheating index. It was observed that perceiving God more negatively (as more punitive rather than merciful, expressed as a difference between the punishing and loving image of God scales) predicted less cheating, regardless of participants' (ir)religion. Interestingly, the title of the paper, "Mean Gods make good people", makes for a concise and accurate summary of its results. This finding was further extended by Shariff and Rhemtulla (2012). Using secondary data, the authors analyzed the prevalence of belief in heaven and hell in relation to the society-wide frequency of crimes (e.g., homicide, theft, human trafficking) in 67 countries. Linear regression analyses demonstrated that crimes were less common in countries where belief in hell was more widespread. Moreover, the effect for belief in heaven was reverse. A study by

Bader, Desmond, Mencken, and Johnson (2010) is also related to this topic. The findings provided evidence for a connection between the perceived image of God and the endorsement of capital punishment in an American sample. Namely, seeing God as an entity prone to anger and eager to judge and punish humans significantly predicted support for the death penalty, which cannot be said about divine benevolence. Moreover, belief in hell and heaven is also linked to well-being (Shariff & Aknin, 2014). Namely, analyses of secondary data revealed that belief in hell was connected to lower life satisfaction, while belief in heaven exhibited an opposite effect, both on a country (63 nations in Study 1) and individual level. Lastly, a comprehensive study (Purzycki et al., 2016, Purzycki et al., 2017) examined the link between prosocial behavior and perceptions of God in eight distinct religious communities around the world (including Vanuatu, Fiji, Brazil, Mauritius, Russia, and Tanzania). Respondents took part in two rounds of a random allocation game. Its base version requires participants to split 30 coins between two cups. For each of the coins, first they make a choice of a cup (in their thoughts) and roll a two-color die. Depending on the result of the roll, they either insert the coin in the cup they chose beforehand or put it in the other one. Since the choice is only known to participants themselves, they can disregard the die roll and still allocate the coin to their selected cup. In the version employed in this study, cups were assigned to certain people. Thus, in the first round, one of the cups belonged to participants and the other to an adherent of the same religion who lived far away. In turn, the second round required a choice between an anonymous person from participants' community and, again, an unknown distant adherent of the same religion. As the results suggest, participants who held a stronger belief in an all-knowing and punitive deity were more likely to behave prosocially towards the faraway brothers and sisters in faith at their own (or the members of their community) expense, i.e., they allocated coins to their cups with higher likelihood. Those results correspond to another principle proposed by Norenzayan in *Big Gods* (2013),

that is: *Hell is stronger than heaven*. As Johnson and Krüger (2004) point out, the supernatural punishment-based approach to the cooperation problem improves the previous solutions in four ways. Its first improvement is that punishment comes automatically (no additional human intervention needed). Secondly, it deals with the issue of so-called second-order free-riding (Panchanathan & Boyd, 2004). It refers to the case of individuals refusing to deliver punishments to others as it comes with personal costs (for example retribution). Such a situation does not happen in a supernatural monitoring setting as the Divine being takes care of every transgression, and no deed is left unseen. Next, if there is no need to engage in disciplining others, there is no risk of retaliation from the punished ones. Finally, the divine punishment is sure and unavoidable, which makes it, at least theoretically, very effective.

According to the religious prosociality hypothesis, this instance of *supernatural monitoring* and *divine punishment* provided by morally involved Big Gods is one of the keys to understanding large-scale group cooperation. An interesting piece of empirical evidence for that assertion is presented by Roes and Raymond (2003) as they found a positive correlational association between the society size and belief in Big Gods (referred to as moralizing gods in the original study) in a dataset of 167 countries from the Standard Cross-Cultural Sample. Using a newer version of this secondary dataset, Johnson (2005) discovered that presence of these deities is associated with large societies across 186 nations. A meta-analysis of religious priming effects also speaks in favor of this proposition as it points towards a stable effect on prosociality measures (Shariff, Willard, Andersen, & Norenzayan, 2016).

Before continuing, let us reiterate the theoretical considerations discussed so far. Belief in Big Gods is facilitated by numerous religious intuitions, by-products of cognitive tendencies acquired through evolutionary adaptations. In turn, faith in these moralizing and punitive deities along with costly signaling motivate prosocial behavior and help restrain

selfishness as transgressions are sure to be detected and penalized. Thus, it fosters large-scale cooperation and prevents free-riding, leading to group stability. One could summarize it in four words: *counterintuition* (belief in the supernatural), *commitment* (by means of costly rituals), *compassion* (relief from fear of death), and *communion* (group living benefits) (Atran & Norenzayan, 2004).

One might ask how it is relevant to anti-atheist prejudice. In fact, both the supernatural monitoring and the punishment hypotheses have significant implications for non-believers. Lack of belief in gods is tantamount to a lack of belief in divine supervision as well as eternal reward or punishment. From a religious point of view, gods alone carry the burden of monitoring, so having no faith in them could be perceived as having no restraint at all. As the infamous quote from Dostoevsky's *The Brothers Karamazov* (1880/2003) goes: " 'But tell me,' I asked him, 'what will happen to men? If there's no God and no life beyond the grave, doesn't that mean that men will be allowed to do whatever they want?' " (p. 788). If so, believers' image of atheists is rather grim. Cooperating with non-believers might be dangerous - if they fear no supernatural punishment, they are more likely to be free-riding on others' efforts. In other words, atheists should not be trusted, and their disbelief is no longer a private matter as it becomes an important social cue. From this point of view, distrusting non-believers appears to be an ecologically valid heuristic, if not a rational course of action. Despite that, no evidence for actual differences in moral behavior between believers and non-believers has been found. A study by Hofmann, Wisneski, Brandt, and Skitka (2014) showed that both religious and non-religious individuals engage in moral and immoral deeds with a similar frequency[18]. In addition, they do not differ with regard to self-reported altruism and moral reasoning ability (Didyoung, Charles, & Rowland, 2013) or empathy and responses to

[18] This study utilized the ecological momentary assessment procedure (Shiffman, Stone, & Hufford, 2008), i.e., participants received a notification on their smartphones five times a day and had to report whether they engaged in (im)moral behavior within the last hour, among others. This was repeated for three days.

moral violations (Rabelo & Pilati, 2019). These preliminary findings indicate that perceiving atheists as a threat has little basis in fact. In spite of that, the theoretical prediction regarding lack of trust towards atheists has already been reflected in the data (see pp. 16-17).

From the perspective of the religious prosociality hypothesis, atheists pose a specific type of a threat, namely a threat to trust. This line of thought is crucial in terms of mode of analysis. In particular, it allows for a functional study of prejudice components. For that reason, the sociofunctional approach to prejudice, which takes dimensionality into account, is commonly employed in this line of research. I will present this framework in the next section, before coming back to the analysis of anti-atheist prejudice.

The Sociofunctional Approach - A Novel Framework for Analyzing Prejudice

While reviewing the theoretical background of anti-atheism, it is necessary to get acquainted with the sociofunctional approach to prejudice (Cottrell & Neuberg, 2005) as most of the previous studies on the topic use this framework. Its principles can be summarized in three main points. Firstly, the authors underline that humans are interdependent, and that this interdependence is a result of evolution. Living in a group provides more opportunities to achieve individual success, therefore it serves as a way of adapting to ever-changing environmental conditions. Secondly, if the group is to function properly and successfully, there are certain social structures and processes that it should employ (e.g., the norm of reciprocity, shared values or effective communication rules) to prevent free-riding. Lastly, both biological and cultural evolution led to the development of particular psychological mechanisms that are used to enhance the functionality of the group living. Individuals use them to maximize possible benefits as well as to protect themselves in the face of a threat, both personal and group-directed. Overall, this approach suggests that group living is preferred, simply because it enhances individual adaptation, not because it grants the survival of the whole group.

One of the basic assumptions of the sociofunctional approach is that members of the ingroup manifest distinct emotional reactions towards different outgroups based on the threat the outgroup is likely to pose. This mechanism is an example of the aforementioned enhancers of group success. What can be derived from this is that specific qualitatively distinct threats elicit particular qualitatively distinct emotions. Those "fixed" connections are referred to as the *threat-emotion profiles* (see Table 2) and have been tested in the original study by Cottrell and Neuberg (2005). The authors hypothesized a link between perception of threat to ingroup and particular emotional reactions (primary and secondary) elicited by that perception. The assumptions were based on an evolutionary approach to emotions as every emotion is thought to evoke a certain adaptive response (e.g., Plutchik, 2001, 2009). For example, perceiving an outgroup as a threat to physical safety should primarily elicit fear and secondarily anger as means to protect self and the others.

Table 2

Threat-Emotion Profiles (Reprinted From Cottrell & Neuberg, 2005)

Threat perception	Motivation elicited by perceived threat	Primary emotional reaction	Secondary emotional reaction
Obstacles to ingroup	Removing obstacles	Anger	Envy/fear/disgust
Contamination to ingroup	Minimizing contamination	Disgust	Fear/pity/anger
Endangered group physical safety	Protecting	Fear	Anger
Threat to reciprocity (due to inability)	Returning to a proper exchange relationship	Pity	Anger/resentment
Threat to perception of ingroup's morality	Confirming moral standing	Guilt	Anger

Several regression analyses were used to determine whether or not the specific threat-emotion relationship exists in the group of European American students. Participants were asked for their reactions to different ethnic, ideological, and religious outgroups common in the United States, including activist feminists, gay men, fundamentalist Christians, and

Mexican Americans. Threat perceptions and affective responses were assessed with two-item measures, with possible answers ranging from 1 (*not at all*/*strongly disagree*) to 9 (*extremely*/*strongly agree*). As expected, perceiving threat to group economic resources, property, and personal freedoms significantly predicted anger, threat of contamination predicted disgust, and threat posed to physical safety of the group members predicted fear. As such, those results were sufficient to confirm the hypotheses and rendered the sociofunctional approach a promising and eagerly used tool in prejudice research.

The sociofunctional approach has been successfully applied in research in the field of both social psychology and psychology of emotion. For example, it has been used to determine what individual characteristics are valued in other people in terms of relevance to the group or personal success (Cottrell, Neuberg, & Li, 2007), to study prejudice against Muslims in the United States and its possible connection to right-wing authoritarianism and social dominance orientation (Matthews & Levin, 2012), to explore the relationship between active and passive harm and threat-emotion profiles (Johnston & Glasford, 2014) or to analyze anti-atheist prejudice in greater detail (Cook et al., 2015; Franks & Scherr, 2014; Gervais et al., 2011).

The sociofunctional approach, though encouraging, also has its limitations. As stated by Cottrell and Neuberg (2005) themselves, they encountered difficulties with generating adequate items for measuring threat to perception of ingroup's morality and therefore omitted them in the subsequent analysis. Moreover, it seems that proposed domains of threat might be overlapping - morality concerns are assigned to two different threat categories (contamination to ingroup and threat to perception of ingroup's morality), whereas anger is a primary or secondary emotional reaction in every case, pointing to the possibility that anger could be underlying prejudice in general (see Table 2). In addition, there is no distinction between disgust elicited by potential body contamination (e.g., disease) in comparison to potential

harm to soul (symbolic defilement by, e.g., rejected values or attitudes), in contrast to the current state-of-the-art (e.g., Haidt, Rozin, McCauley, & Imada, 1997; Moll et al., 2005; Tybur, Lieberman, & Griskevicius, 2009). Since there is a strong connection between prejudice and morality (Forscher & Devine, 2015; Shaw, 2010), especially in the case of anti-atheism (Simpson & Rios, 2017), the limited salience of morality threat in the sociofunctional approach might be striking.

In line with the sociofunctional approach, the first step in analyzing a particular type of prejudice is identifying a specific threat-emotion profile. The religious prosociality hypothesis lends a hand to researchers in that regard, but at the same time generates some issues. Threat to trust potentially posed by atheists belongs to the first broad category from Table 2 - obstacles to ingroup. Accordingly, emotions such as anger, envy, fear or disgust can be elicited in response to this perception. However, this does not seem to be a part of the conceptualization proposed by Gervais et al. (2011) - only distrust is mentioned, and its status as an emotion is mixed at best.

In the last section I will present the concept of meta-ethical beliefs in an attempt to extend the theoretical approach to anti-atheist prejudice. As has been already emphasized, distrust and its derivatives are of central importance in the anti-atheism research. Conceptually, this lack of trust is thought to be associated with atheists' disbelief in gods and in particular the notions of supernatural monitoring and divine punishment. However, specific beliefs that are linked to it have not yet been investigated in greater detail. Is it the fact of non-belief itself, a particular view on atheists' morality or perhaps assumptions not related to morality at all? In the following chapter I will argue that it is meta-ethical beliefs on divine origins of morality that precede atheist distrust and explain how their inclusion increases the explanatory power of the theoretical framework. In particular, I will address

how these specific meta-ethical beliefs bind together perceived atheist immorality, religiosity, and lack of trust towards non-believers.

Beyond Distrust: Meta-Ethical Beliefs and Their Role in Anti-Atheist Prejudice

Meta-ethics is one of the main branches of ethics alongside normative and applied ethics. While engaging in this field of philosophy, we are interested in answering questions on ethical questions themselves (Smith, 1994). Miller (2013) proposes six categories of those inquiries: purpose of moral discourse, existence and nature of moral facts and moral knowledge, epistemology of moral knowledge and judgments, phenomenology of moral decision- or judgment-making, motivations behind making moral judgments, and their objectivity. Table 3 provides examples of questions falling into the listed categories.

Table 3

Categories of Meta-Ethical Inquiries as Proposed by Miller (2013)

Category	Example
Purpose of moral discourse	When we engage in moral discourse, what is its function - fact-stating or voicing attitude/preference?
Existence and nature of moral facts and moral knowledge	What constitutes moral knowledge? How do we define moral facts? What are their properties?
Epistemology of moral knowledge and judgments	How do we know an act is moral, and how are we able to justify it?
Phenomenology of the moral decision- or judgment-making	How are moral facts/terms perceived by the individual in the process of moral decision-making?
Motivations behind making moral judgments	What are the possible motivations driving moral decision-making?
Objectivity of moral judgments	Is moral truth attainable? Are there any objectively correct moral judgments?

Alternatively, Fisher (2014) offers a perhaps more compact account by identifying three broader types of meta-ethical issues: moral language (e.g., what are the referents of moral terms such as “good” or “bad”, what is the meaning or the intention behind them), moral psychology (analyzing the relationship between moral decision-making and moral motivation), and moral ontology (e.g., (non-)existence of moral facts and moral knowledge).

Theoretical considerations combined with attempts to provide an answer to those complex questions resulted in a few distinct meta-ethical standpoints. Some of the examples would be moral realism (regarding moral facts as objective) or non-cognitivism (regarding moral judgments as an expression of emotions or the extent to which one accepts the norms). General meta-ethical stances or theories come with sets of meta-ethical beliefs, alternatively called commitments. For example, if we would ask *what makes x a morally good action*, an objectivist would reply that *x is good no matter what I think of it*, while a cultural relativist might say that *x is good, because the* [certain] *society claims it is good*.

The very fact that sometimes these positions are contradicting each other does not mean that individuals do not adopt more than one approach. On the contrary - Wright (2018) underlines the double nature of meta-ethical pluralism. She argues that not only does it exist, but it also has a significant practical purpose as it fosters ethical discourse and debate. On the one hand, meta-ethical beliefs differ from one person to another, while on the other hand there is also substantial intrapersonal variability in that regard. Goodwin and Darley (2008) showed that activation of a meta-ethical position, either objectivist or relativist, is contingent on what the content of an ethical belief to be evaluated is. Participants were presented with a list of 26 sentences and asked to indicate how much they agree with them. Then, they had to evaluate which of the available options best applies to each of the statements. In Study 1, respondents could categorize the sentences in terms of truth, falsehood, and simply being an opinion, while in Study 2 their task was to assess whether it is possible to provide a correct response when asked if a given statement is true. In the last part, participants were asked how they process the fact that other people disagreed with them in terms of the statement evaluation. In particular, they could choose from four options (others are wrong, both sides are right, the participant is wrong or an answer not listed). Apart from that, questions on participants' perception of origins of morality were also administered. Even though there was

a similar level of agreement among respondents on the permissibility of terminating a pregnancy or assisting in euthanasia of a friend (mean response was above the neutral point), only 2% and 8% respectively deemed the presented moral status of these actions as objectively true (other choices being "false statement" and "opinion"). However, this pattern was not always the case. Trying to dishonestly pass a lifeguard exam was almost unanimously considered immoral, and 58% of respondents deemed it to be a true statement. The authors also observed that perceived objectivity of ethical beliefs is comparable to that of scientific facts, and that meta-ethical objectivism is predicted by a belief in divine origins of morality, the latter finding being of special importance in anti-atheism research. Subsequent studies with a similar design (Goodwin & Darley, 2012) revealed that perceived objectivity differs depending on the belief type - beliefs about ethical violations were evaluated as more objective than statements about morally commendable acts. Following up, Wright, Grandjean, and McWhite (2013) utilized the methodology of Goodwin and Darley (2008), but left the classification of moral issues to participants themselves. What is important to note, the original conclusions did not change, and the evidence for meta-ethical pluralism emerged here as well.

Of course, empirical studies of folk meta-ethical commitments are not limited to the phenomenon of meta-ethical pluralism only. Psychologists and experimental philosophers investigated the developmental trajectories of these beliefs (e.g., Schmidt, Gonzalez-Cabrera, & Tomasello, 2017) and their links to prosociality (Young & Durwin, 2013), the just-world fallacy and moral progress (Uttich, Tsai, & Lombrozo, 2014) or mortality salience (Yilmaz & Bahçekapili, 2018), among others. The analysis of connections between intolerance and meta-ethical beliefs is one of the research strands that is particularly promising. Wright, Cullum, and Schwab (2008) asked the participants to categorize selected issues as moral or non-moral. What is important to note, the property of being moral was defined as being

objectively true, independent of personal opinions. As such, attributing it to an issue could be treated as an indicator of meta-ethical objectivism. Across three studies, participants who perceived the problems in question as moral were less tolerant and prosocial as well as more distanced towards those who had a different opinion on the topic. Wright, McWhite, and Grandjean (2014) further developed this design by adding more categories to choose from beyond the "moral"/"non-moral" distinction ("personal choice/preference", "social convention/norm", and "scientific fact", p. 32). Perceived grounding of the issue (objective/non-objective) as well as tolerance towards those who do not share the same values and beliefs (measured by readiness to interact and aid) were also assessed. As it turned out, tolerance was significantly lower when the issue was identified as moral and objectively grounded as compared to non-objective moral problems, but also objectively grounded factual or social ones, especially in a more intimate situational context (e.g., dating). Moreover, the already mentioned study by Goodwin and Darley (2008) demonstrated that perceiving a moral belief as objective correlates positively with stronger discomfort with another person's disagreement on that topic and with seeing that person as more immoral.

Examining the intricate relationship between religiosity and meta-ethical commitments is another topic of academic interest. Yilmaz and Bahçekapili (2015) explored this link in a series of studies. The first study was correlational and included measures of religiosity and meta-ethical beliefs. In the second study, a sentence unscrambling task was used in a priming procedure (see p. 37), and participants were either assigned to a religious or neutral condition. Next, participants were presented with moral dilemmas aimed at measuring moral subjectivism vs. objectivism as well as with a short meta-ethical beliefs scale. Finally, the third study included priming via a short paragraph, and its purpose was to highlight the subjectivity or objectivity of moral truths. Results showed that meta-ethical subjectivism was negatively correlated with intrinsic religiosity and the certainty of conviction that God exists.

Furthermore, when presented with moral dilemmas, participants in the religious priming condition exhibited a more objectivist approach than respondents who solved a neutral task beforehand. A reverse effect was observed as well, as those who read a passage intended to prime a subjectivist meta-ethical stance were less certain of God's existence in comparison to the objectivist and neutral conditions. Sarkissian and Phelan (2019) analyzed how perceived image of God, and believing in a punishing deity in particular, relates to meta-ethical positions. The first study required participants to complete measures of moral relativism, religiosity, and beliefs in heaven and hell. In the second study, a sentence unscrambling task was used (see p. 37) to prime the concept of a loving or punitive God, after which moral objectivism and religiosity scales were administered. Lastly, Study 3 also had a priming component. Depending on the experimental condition, theist participants were primed with a relativist or objectivist meta-ethical stance via text or assigned to a control group and asked about benefits of online data collection. To verify what their image of God is, a two-factor Views of God scale was utilized (Shariff & Norenzayan, 2011; see p. 73). Findings revealed that belief in hell (here used as a proxy indicator of perceiving God as punitive) was the only significant predictor of folk relativism among theists, such that the stronger participants believe that hell exists, the less they endorse a relativist meta-ethical stance. Out of the two subsequent priming studies, only one confirmed the hypothesis. While perception of God as loving did not differ significantly across conditions, respondents previously primed with an objectivist meta-ethical position saw God as more punishing than participants from the two other groups.

Divine Command Theory and Its Relevance in Anti-Atheism Research

"Consider the following:

is the pious loved by the gods because it's pious? Or is it pious because it's loved?"

Euthyphro, Plato (ca. 380 BCE/2012)

Meta-ethical objectivism, religiosity, and their connections are three focal points of the discussed studies. Divine command theory (or rather a family of such theories) is a theistic meta-ethical approach that binds them together and might be especially relevant to studies of anti-atheist prejudice. Its main assertion is that what is right and wrong is determined by the will of God. The modified version of the theory as proposed by Adams (1979) can be expressed by this single statement: "ethical wrongness *is* (i.e. is identical with) the property of being contrary to the commands of a loving God." (p. 76). This modification mitigates the criticism because it helps deal with the often debated issue of God ordering an evil deed (Harrison, 2015; Morriston, 2009b). As an argument against this theory it loses its power, because the very fact that God is a magnanimous and gracious entity prevents him from demanding such an action (Ward, 2013). This statement shows a stark difference between the God(s) of the divine command theory and Big Gods presented before. The image of the former highlights their perfect goodness, compassion, and kindness, while the latter are referred to with fear-lined reverence as the emphasis lies on their role as watchers, who administer eternal punishment. In other words, one could say that divine command theories present a more benevolent deity, while Big Gods account stresses their rather malevolent nature[19].

Wilkens (2009) summarizes the divine command ethics by saying that humans, as creatures of God, need to obey the rules that are also a divine creation - and not an autonomous reality. God's ways are incomprehensible, and this will not change as human mind is too limited, there is no point in trying to unravel them. Thus, following God without

[19] One could use the following passages from the Bible to illustrate God(s) of the divine command theories and Big Gods, respectively: "Every generous act of giving, with every perfect gift, is from above, coming down from the Father of lights, with whom there is no variation or shadow due to change." (*New Revised Standard Version*, 1989, James 1:17) and "For it is indeed just of God to repay with affliction those who afflict you, and to give relief to the afflicted as well as to us, when the Lord Jesus is revealed from heaven with his mighty angels in flaming fire, inflicting vengeance on those who do not know God and on those who do not obey the gospel of our Lord Jesus." (*New Revised Standard Version*, 1989, 2 Thessalonians 1:6-8).

doubting is a necessity. Numerous versions of this approach were developed (Carson, 2012), and in general it was met with quite vigorous criticism (e.g., Morriston, 2009b; Tuggy, 2005). An interesting argument has been put forward by Morriston (2009a) as he points out that the theory does not deal with the issue of moral obligations of those who do not believe and therefore is not an exhaustive account. Regardless of these objections, the divine command theory still stands strong as one of the main frameworks of approaching the topic of right and wrong.

Why is the divine command theory possibly useful in anti-atheism studies? The answer lies in meta-ethical commitments that originate in this stance[20]. Perhaps the most relevant of them is the presupposition that God is both the ultimate source and the arbiter of morality. He does not reveal any external law to humanity nor is he subject to it. With that comes an assumption that moral truths, being a gift from a perfect supernatural entity, are necessarily objective, immutable, and final. Moreover, there is no room for negotiation as failing to adhere to these norms might result in inevitable punishment. What could follow is a belief that having no faith in God is equivalent to questioning the very foundations of morality as it has strictly divine origins. If atheists became the majority, the moral bedrock would be eroded, a perspective which makes non-believers particularly dangerous, both on an individual and societal level. Although it seems to be quite a radical statement, in its extreme version divine command theory presupposes that humans have no means of attaining moral knowledge or truth in any other way than through following God, which is in fact an objection put forward by Wainwright (2005)[21]. In consequence, those who stray from God

[20] As mentioned before, there is no single binding version of the divine command theory. Largest Abrahamic religions have their own explications of this meta-ethical stance (e.g., Harris, 2003 - Judaism; Al-Attar, 2015 - Islam; Quinn, 1992 - Christianity).

[21] Copan and Flannagan (2014) claim that divine command theory does not exclude the possibility of attaining moral knowledge outside of faith. This interpretative confusion can be attributed to the multitude of academic and lay understandings of this meta-ethical position.

stray from morality itself. This broad meta-ethical stance could be concisely expressed in the following way: “God said it, I believe it, that settles it” (Wilkens, 2009 - title of the chapter on the divine command theory). Of course, this is by no means an exhaustive account of all meta-ethical commitments that can be derived from the divine command theory. However, these are examples that could be connected to specific low tolerance of divergent opinions and attitudes, a tendency already observed in the discussed meta-ethical beliefs studies.

Bearing that in mind, I argue that introducing the notion of meta-ethical beliefs enhances the explanatory power of the theoretical framework of anti-atheism research by elucidating the relationship between religiosity, distrust towards atheists, and perceived atheist immorality, consequently bridging the previously identified research gap. Specifically, I propose that endorsing meta-ethical commitments stemming from the divine command theory fosters deeming non-believers immoral (or rather highlights their inability or unwillingness to act morally), a stereotype demonstrated to be pervasive and widespread. This perceived immorality, in turn, facilitates distrust as it stresses the lack of moral overlap between believers and non-believers. This elementary discrepancy of moral values systems violates integrity, one of the elements assessed while evaluating one’s trustworthiness (Baer & Colquitt, 2018). Effectively, holding meta-ethical beliefs on divine origins of morality could lead to anti-atheist prejudice through eliciting or strengthening distrust towards non-believers, which is known to be the crucial component of anti-atheism.

Summary

Word is that atheists are… immoral, narcissistic, and dangerous. Though overlooked for so long, anti-atheist prejudice is undeniably a prevalent societal issue. Despite the fact that it has attracted scientific attention only fairly recently, a robust theoretical framework has already been established, as presented in previous sections. Slowly, but surely, the structural components and mechanisms of anti-atheism are being unraveled. At the same time,

discoveries inevitably raise new questions, and there are still many blanks to be filled. Distrust towards atheists, derived from the religious prosociality hypothesis, is pivotal to anti-atheism research and will be of key importance in the present dissertation. However, rather than consolidating its theoretical prominence, I will concentrate on cognitions that could lead to its formation. In other words, the thesis is driven by a broad research question, namely whether distrust towards non-believers is truly at the core of anti-atheist prejudice. I will argue that these aforementioned cognitions, that is, meta-ethical beliefs on origins of morality, meaningfully extend the framework. In particular, I propose that their introduction allows for a more comprehensive explanation of how religiosity, perceived atheist immorality, and non-believer distrust intertwine and lead to anti-atheist attitudes.

Taking that into account, the main objective of the present dissertation is to shed light on the relationship between atheist distrust and meta-ethical beliefs as a part of a bigger picture of anti-atheist prejudice. At the same time, I aim at contributing to the literature on the subject by analyzing the specific case of Poland, a country whose traditions, culture, and national identity are deeply rooted in Christianity.

In the following chapters, four studies will be presented, each contributing to the main purpose of the dissertation to a different extent. The pilot study offers a preliminary insight into how Polish theists and atheists see each other and highlights the mutuality of religion-based prejudice. First of the core studies, Study 1, tests hypotheses based on the sociofunctional approach to prejudice and is focused on the assessment of perceived threats and elicited emotions. At the same time, it offers first evidence for the importance of meta-ethical beliefs in anti-atheism. Results of these two studies made it evident that a validated questionnaire of meta-ethical beliefs is needed. Therefore, the next step of the doctoral project was to develop such a measure, and Study 2 is its pretest. Having successfully tested the Meta-Ethical Beliefs Questionnaire, it was administered in the final study of the

dissertation. Study 3 provides first evidence for meta-ethical beliefs on origins of morality and distrust towards atheists operating in a sequence through serial mediation analyses.

Pilot Study

Before the core studies (1-3) were conducted, a short survey was administered between 28th of July and 3rd of August 2016 to preliminarily assess the attitude of Poles towards non-believers. It consisted of a 10-item questionnaire to which participants could answer with "true" or "false" (see Table 4; taken from Sneddon, 2016) and one open question (*Is it worth becoming an atheist? Why? Why not?*; based on Sneddon, 2016). Links to the survey were posted on social media (Facebook). 161 people took part in the study (112 women, 49 men). Average participant age was 23.66 (*SD* = 4.04, minimum = 18, maximum = 59). 56 participants had completed secondary education, four - vocational education, and 101 - higher education. Most of the respondents were Christian (48.45%) and atheist (24.22%).

Analysis of the Closed-Ended Questions

Table 4 presents the frequencies of affirmative answers to the questionnaire items for theists and atheists separately. Participants were assigned to these groups based on their responses to the first item (*There is a god)*.

Table 4

Percentages of "True" Answers to Sneddon's Questionnaire on Atheism for Theists and Atheists

Item	Theists (*n* = 91)	Atheists (*n* = 70)
There is a god.	100.0%	0.0%
A godless life is meaningless.	71.4%	2.9%
Without god, absolutely anything is permissible.	13.2%	12.9%
Atheists do not have souls.	1.1%	24.3%
Atheists think we are just animals.	20.9%	25.7%
Atheism offers nothing to those who fear death.	58.2%	18.6%
The godfree think religion is worthless.	40.7%	30.0%

Item	Theists (n = 91)	Atheists (n = 70)
Only religious people value families.	3.3%	0.0%
God is needed to explain the origin of the world.	38.5%	1.4%
Faith is unavoidable, so we might as well be religious.	38.5%	4.3%

As shown by the data in Table 4, most of the participants were theists. It appears that the majority of respondents who believe in God perceived life without theistic beliefs to be devoid of meaning (71.4%) and thought that atheists have no means of dealing with fear of death (58.2%). According to, respectively, 40.7% and 20.9% of believers, atheists deem religion to be of no value and consider humans to be just another species of animals. Nearly 40% of participants agreed that it is impossible to explain the genesis of the world without God and that faith cannot possibly be avoided, in which case being religious seems to be a reasonable choice. Furthermore, 13.2% of theists thought that there would be no moral boundaries without God. Though a vast majority of respondents disagreed with the two remaining statements, there were still three participants who assumed that family is not a value for atheists and one who claimed that non-believers do not have souls.

In the atheist sample the participants largely disagreed with the presented statements. As could be expected, none of the non-believers agreed with the sentence stating that family is a value only for religious individuals. Only one respondent considered God necessary for explaining the world's origin, other two admitted that life without God is senseless, while another three declared that it is not possible to escape from faith. About the same percentage of atheists (12.9% compared to 13.2% of theists) concurred that every deed is acceptable if God does not exist. Surprisingly, almost one fifth (18.6%) of the non-believing participants admitted that atheism does not help deal with fear of death. Moreover, 24.3% of respondents agreed that atheists do not have souls, while 25.7% approved of the statement saying that, according to non-believers, humans are simply animals. Interestingly, a lesser percentage of

non-believers (30% compared to 40.7% of believers as indicated above) thought that atheists perceive religion as having no worth.

Analysis of the Open-Ended Question

The last part of the questionnaire consisted of an open-ended question loosely based on the one proposed by Sneddon (2016), namely: *Is it worth becoming an atheist? Why? Why not?* 55% of participants provided a response, resulting in 4,482 words (see Appendix A). The answers were divided into three categories: negative (n = 33), affirmative (n = 25), and mixed opinion (n = 31) to systematize the analysis.

Negative Answers

Eight main types of responses could be identified:

a) atheism deprives life of meaning - e.g., *No, because what is the meaning of our life then?*; *No, because one will lose faith that there can be something after death, and life will become meaningless*; *If I became an atheist, my life would not have meaning*.

b) atheism provides no basis for morality - e.g., *Life without God is empty, it is easier to lose morality*; *Atheists, on the other hand, are in this sad position of not having this basis which is God himself, so they also cannot derive any stable moral laws, thus, they do not even know how to live*; *It is not worth it, because if there is no God, then there is no good or evil. If people made up what is moral on their own, the world would have ended a long time ago. One can do whatever one wants. Kill, steal, rape or live peacefully, all without consequences. What is more, nothing defines the value of a human being then.*

c) atheism brings no comfort - e.g., *Faith gives solace, sense of security, peace, support…*; *Faith helps in daily life. It gives hope*; *that we find consolation during difficult moments is something incredibly important.*

d) atheism is connected to experiencing negative emotions - e.g., *If I became an atheist, . . . I would feel emptiness and sadness*; *existence without any god seems to be sad and terrifying*

to me, and in my case even impossible; *It is like falling into a black hole from which there is no way out. Inviting emptiness to life*.

e) atheism leads to infinite torment - e.g., *In short: one will go to hell*; *And from a Christian's perspective, eternal damnation is the consequence of rejecting Christ*.

f) atheism does not cater to human need for explanation - e.g., *No, because every human needs a superior person to explain some phenomena*; *It is not worth it, it is easier to live when you are sure that someone is watching over you or has a grand plan in which everything makes sense*.

g) atheism causes inability to love - e.g., *It is not worth becoming an atheist because an atheist will not be able to truly love due to the fact that she/he does not respect God, who is love*; *No, because faith in God gives life meaning. It makes us learn to live the love*.

h) justification through Pascal's wager - e.g., *No. Pascal's wager is the answer why not*; *Looking at it even through atheist's eyes, I would rather believe because I do not lose anything, and I can gain a lot*; *It gives nothing more than some conviction, which, if it is wrong, can cause some harm. On that basis, believers are in a little better position - if their conviction is wrong, practically nothing will change*.

There were also some single responses which did not fit into these categories. For example, one of the theist participants explained their point of view by pointing out that atheism is very often rooted in one's negative experiences with a certain religion and/or its followers. Another respondent expressed a conviction that atheism can only bring benefit to individuals, but not to societies, and that belief in a higher being is a common, though hidden, human need. Others referred to: Christianity as the only true religion, happiness that comes from relationship with God, the need to open oneself to God's grace and love, religion as tradition, and the ultimate purpose behind creation of humanity - knowledge of and contact with God. Amongst these remaining answers, one could also find opinions according to

which science, atheists' reference point, is in no position to explain the origins of the universe or that atheism is simply nonsensical. One of the participants even went as far as to assert that it is not worth becoming an atheist, because *Believers live longer*.

Affirmative Answers

Several motives were recurrent throughout the participants' replies:

a) religion as a method of manipulation - e.g., *From prehistory, religion served as a means of subjugating people, solidifying the social hierarchy, . . . and benefitting from "ruling souls". Ironically, the Christian culture's metaphor of a "good shepherd" wonderfully describes cult activities - they lead and herd the flocks, and fleece them for profit*; *not to mention how religion lies, manipulates, and hides uncomfortable facts for itself*.

b) atheism, as opposed to religion, expands one's horizons - e.g., *It opens one's eyes to many things*; *One can get to know other worldviews, learn to respect*; *It is worth it because then one has a broader worldview. One is not limited by any frameworks*.

c) atheism frees from fear - e.g., *Freedom from fear of imaginary evil and imaginary consequences aka hell*; *religion . . . makes one think about one's own death . . . when death is still far away . . . ; atheism frees us from this fear of death, by which it brings optimism into our lives*.

d) atheism is based on science and rationalism - e.g., *at home one can believe in anything, but in life it is science that reigns*; *Of course. Rationalism and science help know and understand the world better*; *Rational thinking is the highest value in today's world*.

e) the idea of God as implausible - e.g., *I simply do not know how one can look at the history of the universe, how science progresses . . . , and truly, sincerely, and consciously believe in god*; *Because religion contradicts science, and science has irrefutable evidence that the bible is a human invention*; *Yes, because it allows living life to the fullest, in a real world, without resorting to fables, myths, and legends*.

f) religion as an advocate for a worldview which is not congruent with the present times - e.g., *Even if clergymen are not cynics, who deliberately use people, they strengthen an archaic and theocentric view of our world*; *Constructs that are being instilled in us for years by the Catholic theology, church, parents, environment in which we live are outdated and hinder human intellectual development*; *religious faith introduces imprecise concepts into our life, they come from primitive times in which the level of knowledge was much lower*.

g) atheism teaches responsibility and leads to personal/moral development - e.g., *I think it is worth it because it is connected with a greater sense of responsibility for one's own actions and with being good due to one's OWN morality and the good of humanity, and not for religious reasons*; *It teaches tolerance towards what is happening in the world without demanding changes from god's side, it can shape one's own responsibility and agency, reflectiveness*; *It is the way to self-awareness*.

h) atheism as the way to truth - e.g., *atheism is more sincere and straightforward, more eager to talk about reality as it is and not as the speaker would like to see it*; *For people who value truth, atheism is the only option*; *Yes, because we do not have to fool ourselves with false and meaningless dogmas*.

i) highlighting other negative aspects of religion - e.g., *It is worth being an atheist because . . . it is a shame to waste time and resources on vain and idolatrous activities*; *generally, religion discourages us from acting and encourages to prayer and contemplation; . . . religion, exactly due to its conceptual inaccuracy, has a tendency towards hypocrisy*; *More money in the pocket in old age*.

Similarly to negative responses, not all of the affirmative ones could be categorized. One of the participants motivated their answer by saying that the very idea of the afterlife makes one's efforts to improve their life, their suffering, joys, and struggles meaningless if one has eternity in perspective. Therefore, it is atheism which bestows one's existence with

purpose. According to other atheists, it is also worth becoming one, because it simplifies life and enables one to notice and enjoy even the small things as well as be flexible and adapt to situations that are not regulated by the common social norms.

Interestingly enough, one of the participants voiced a concern that some people refrain from immoral behavior only due to fear of supernatural punishment, which puts the idea of a purely secular society into question. The very same respondent was also the only person who acknowledged positive aspects of religion like charity work.

Mixed Answers

Responses from this general category mostly pertained to:

a) freedom of choice - e.g., *One can believe (or not) in anything one wants to*; *Everyone should live in accordance with one's beliefs, no one can be persuaded to be an atheist or a believer*; *it is not possible to change beliefs by force, it all depends on what the person feels*.

b) the importance of looking for one's own way - e.g., *It is worth getting to know all paths and choosing the best one for oneself*; *It is worth searching for, it is worth considering. It is worth undermining things which do not quite suit us*; *it is worth being aware of other religions and cultures, and only after getting to know them, decide what one wants to believe, and whether it is needed as a complement to one's worldview.*

c) becoming an atheist as a process - e.g., *In my opinion, a person becomes an atheist or a believer of a particular religion in a process of spiritual development and not under the influence of a decision*; *One can only determine a moment of realization of being an atheist*.

d) no need for categorizing people - e.g., *In my opinion, an atheist is no different from a believer (except for the attached label). Under the layer of faith there can be a bad person and vice versa*; *one must not categorize people. . . . Regardless of whether one is a believer or an atheist, one should be a good person*.

e) strength needed to be an atheist - e.g., *due to that it is often more difficult to attain peace because one cannot refer to someone superior who determined that things have to be that way*; *One certainly needs to be a bit stronger to be an atheist because faith often gives people strength, helps find some motivation and hope in difficult moments*.

Mixed responses were particularly difficult to categorize. Quite a few of them referred to the phrasing of the question and the fact that one cannot consider becoming a (a)theist in terms of whether it is worth it or not - one simply is a (a)theist or not. Some of the respondents underlined that this cannot be compared with, for instance, choosing a profession or deciding to buy a certain product. Though participants mostly had no definite answer to the main question or used arguments similar to the ones mentioned in the two previous categories, their remarks were still quite informative, and new insights could be attained. For example, one could find voices stating that atheism has become a trend nowadays, that being an atheist in Poland is difficult, that atheists are not as insistent in their attempts to convert others or that atheism is a very likely consequence of rational thinking. Other participants pointed out that atheists can also be spiritual, though not in the same way believers are, that atheism might lead to anarchism, that the only benefit of being an atheist is having an open mind or that some people become "atheists" to look at religion from the outside, but it is usually due to their religious immaturity. Another respondent answered with: *Yes, because then one does not give a hang about any commandments, no, because then one is emotionally drained* - but unfortunately, they did not elaborate further on what was exactly meant by it. It is also interesting to note that responses from this category were the longest.

Discussion

Though the pilot study was not aimed at measuring anti-atheism or anti-theism, it appears that these two types of prejudice were indirectly captured. Mutual stereotypes could be clearly seen in the answers given by respondents, and in that regard responses to the open-

ended question were especially informative. Below I discuss the main findings regarding the perception of non-believers and believers.

According to theists who took part in the study, atheists are unable to find meaning in life, specifically due to the fact that they do not believe in life after death, eternal reward or punishment. Here, it is implied that the purpose of life stems solely from having the perspective of an afterlife - otherwise whatever one does in daily life would have no real significance whatsoever. This seems to be the most strongly pronounced impression of atheists and their lives: nearly three fourths of all theist participants agreed with such a statement in the first part of the questionnaire, but it also appeared quite often in the answers to the open-ended question. What was particularly interesting from the present dissertation's theoretical point of view is that some of the respondents perceived atheists as immoral or at least more prone to immoral behavior than individuals who believe in God. In this sense, God is the ultimate reference point, and lack of belief is tantamount to lack of moral restraint. Moreover, some theists associated atheism with negative feelings such as sadness or emptiness, and in extreme cases - inability to love, which is a consequence of not being in a relationship with God, who is Love itself. To complete this rather pessimistic or even fatalistic picture, atheists are deprived of comfort, strength, hope, and answers that faith provides, and if they do not convert, they will be doomed to spend eternity in hell. Apart from these grim conclusions, some of the believers also stated that having faith is simply “worth it”, referring to Pascal's wager in their explanations, or that belief in God brings true happiness and does not limit an individual in any way.

On the other hand, atheists saw religion as promoting an outdated worldview, though not as completely without value. They did, however, strongly emphasize how it can be used to manipulate and control people or benefit from its followers (for example financially). What also contributed to this negative image was the perceived encouragement of prayer rather

than acts or senseless (according to atheists) activities that religious individuals engage in, which only result in lost time and resources. A few of the participants seemed to perceive religion and science as mutually exclusive and pointed out that existence of God is simply impossible given humanity's progress and history. Atheism, seen by some as the stronghold of rationalism, frees from dogmatic limitations and helps one understand the surrounding world through the lens of science. Following this line of thought, some of the non-believers highlighted the positive aspects of atheism such as freedom from fear of death and damnation, encouragement of intellectual, moral, and personality development, respect for others, and broadening one's worldview. Finally, atheists thought that non-belief enables a more genuine and simplified way of perceiving the world, without any distortions or wishful thinking.

In summary, the pilot study, though very simple in its construction, yielded the first insight into how theists and atheists in Poland perceive one another and how they understand their own (dis)belief. Both groups exhibited strong feelings towards each other and did not mince words when voicing their attitude. In theists' eyes, non-believers lead a plain existence, with no real purpose, no morality, and no hope. On the other hand, atheists see religion as manipulative and corrupted, and believers as blindly following, engaging in pointless worship. It is interesting to note here that atheists' responses mostly pertained to religion and not its followers, contrary to what theists focused their answers on. These findings are very valuable as they provide the first evidence for the religion-based prejudice and its mutuality in Poland and can be further utilized in the process of designing the core studies of the dissertation.

Study 1

The main aim of the first study was to test the hypothesis regarding the threat-emotion profile behind anti-atheist prejudice. One could assume there is a scientific consensus on the type of threat that atheists are seen to pose, namely threat to trust. According to the sociofunctional approach to prejudice, perceived threat to trust belongs to a broad category of threats evoked by obstacles to ingroup, which in turn elicit anger as the primary emotional reaction and fear as the secondary one. However, even though the sociofunctional approach is often applied to study anti-atheism, the connection between threat to trust and anger has not been tested so far. Instead, a link between perceived threat to trust and distrust is proposed. This leads to an important question: should distrust be treated as an emotion or is it understood as an attitudinal result of perceiving atheists as threatening trust? Both of these interpretations raise further issues. The former understanding is problematic due to the fact that distrust's status as an emotion is debatable and, perhaps more importantly, it is not included in the emotional typology of the sociofunctional approach. The latter proposition, which deems distrust to be the response to perceived threat, disregards the emotional component and therefore does not form a proper threat-emotion profile, which is at the core of the sociofunctional approach to prejudice. In order to remedy these concerns and to stay in accordance with the theoretical background (see Table 2, p. 45), I hypothesized that a link between perceived threat to trust and anger is the threat-emotion profile behind anti-atheist prejudice.

The study's further objective was to examine intergroup attitudes of religious and non-religious individuals in order to test for prevalence of anti-atheist prejudice in Poland. As was shown in the previous sections, a connection can be drawn between perceiving atheists as untrustworthy and belief in God. In line with the religious prosociality hypothesis, faith is a cue of trustworthiness as it implies that the believing individual is aware that transgressions

are met with supernatural punishment and is less likely to commit them. When it comes to atheists, such certainty is not possible and in consequence leads to distrust. Of course, for this effect to emerge, one has to be a believer oneself. Therefore, I expected religious individuals to have a more negative attitude towards the non-religious ones in comparison to their own ingroup members. Still following that line of thought, I hypothesized that followers of another religion (in the case of the present study: Muslims) would be perceived less negatively as compared to non-believers as they still share a belief in God, albeit a different one depending on the professed denomination.

Finally, the study aimed at analyzing how religiosity is linked to anti-atheist prejudice in more detail. To achieve better insight into this relationship, general religious orientation was assessed alongside with constructs related to religiosity, such as perception of God, religious fundamentalism, religious belief styles (post-critical beliefs), and moral foundations. Moreover, four items measuring one's perception of the origins of morality and function of religion were designed (based on the pilot study results) and administered. Here, I posited a general hypothesis of a positive link between religiosity and anti-atheist prejudice as well as aimed at exploratory investigation of the potential relationships of religiosity-related concepts and anti-atheism.

To recapitulate, the hypotheses of Study 1 could be formulated as follows:

H_1: The threat-emotion profile of anti-atheist prejudice is composed of perceived threat to trust and anger.

H_2: Religious individuals are more negative towards non-religious ones in comparison to followers of their own religion.

H_3: Religious individuals perceive atheists more negatively as compared to followers of another religion.

H_4: Religiosity is positively related to anti-atheist prejudice.

I expected medium effect sizes (Cohen, 1988), i.e., $f^2 = 0.15$ (H_1, multiple regression analysis with maximum three predictors), $f = 0.25$ (H_2 and H_3, comparison of perceptions of the three target groups), and $r = .30$ (H_4, correlation analyses). Given that, I computed the minimal sample size using G*Power software (Faul, Erdfelder, Buchner, & Lang, 2009) and set the power to .80. The calculated sample size was respectively 77, 159, and 67. Apart from that, I planned to perform an exploratory factor analysis on the items measuring threat. Here, I used the rule of 5:1 (observation-variable ratio, Hair, Black, Babin, & Anderson, 2013). As the questionnaire was composed of 27 items, the minimal sample size would be 135. Lastly, for testing H_1 I intended to employ simple mediation analyses using bootstrapping, which is an estimation approach providing powerful results even with samples as small as 20 to 80 (Efron & Tibshirani, 1993; Jose, 2013). Taking all of this into account, I aimed at a sample size of at least 159 participants.

Procedure and Questionnaires

The study was conducted online between January and July 2017 using Unipark software (www.unipark.de), whereas Prolific crowdsourcing platform and distributing links to the survey through Facebook, Twitter, and Reddit were used as means of recruitment. In total, 223 participants took part in the study (84 women, 139 men). Average age was equal to 26 (SD = 8.02, minimum = 16, maximum = 62). 48.9% of respondents attained a higher education degree, while 44.8% completed secondary education.

For the first part of the study, participants were randomly assigned to one of three conditions: Christian, Muslim or atheist. First, they were presented with a vignette, briefly describing either Christians, Muslims or atheists in terms of their percentage share in the world population and their core (non-)beliefs. The following is an example of a vignette for the atheist target group (see Appendix B for the remaining two): *Atheists make up about 10% of the population. They are certain that God does not exist. They do not believe in any form of*

a divine being and refuse to accept any supernatural truths. Below you can find various opinions that you can sometimes hear about atheists. What is your personal opinion? Please indicate to what extent you agree or disagree with the following statements.

Two instruments followed after the vignette:

1) a 27-item threat questionnaire designed for the purpose of the present study and intended to indirectly measure threat perceptions derived from the sociofunctional approach (e.g., *X should not donate blood* or *If X were my child's teacher, I would be bothered*, where X is a group corresponding to the group from the vignette). It consists of one general attitude scale (mean of all items; see Appendix C) and three threat subscales (see Appendix D for the scales and Appendix E for the factor analysis results): perceived threat to trust (referring to the *obstacles to ingroup* category from the sociofunctional approach typology), perceived threat of disrespect (referring to the *contamination to ingroup* category), and perceived threat to safety (referring to the *endangered group physical safety* category). Participants were asked to indicate their agreement with the statements on a scale from 1 (*definitely no*) to 5 (*definitely yes*). Cronbach's α coefficients for the scales in each condition (Christian, Muslim, atheist) are presented in Table 5.
2) Positive and Negative Affect Schedule - Expanded Form (PANAS-X, Watson & Clark, 1994; Polish adaptation: Fajkowska & Marszał-Wiśniewska, 2009), which is a self-report measure of affective experiences. Out of the 13 original scales, five (fear, hostility, guilt, positive and negative affect) were retained. With the addition of the self-developed disgust scale, two items from the original PANAS-X surprise scale, and one buffer item 38 items were administered (see Appendix F). For the purpose of the analysis, six scales were computed: positive affect, negative affect, fear, guilt, anger (three out of six hostility items), and disgust. The instruction was modified (*Indicate to what extent you have felt this way towards X*, where X is a group corresponding to the group from the vignette) in

order to obtain data on emotional reactions to target groups. The response scale ranges from 1 (*very weakly*) to 5 (*very strongly*). Table 5 presents the coefficients of reliability (Cronbach's α) for each condition (Christian, Muslim, atheist).

Table 5

Reliability of Attitude, Perceived Threat, and Elicited Emotions Scales for All Conditions

Scale	Christian	Muslim	Atheist
General negative attitude	.93	.94	.91
Threat to safety	.77	.82	.72
Threat of disrespect	.83	.82	.78
Threat to trust	.79	.84	.83
Positive affect	.89	.80	.89
Negative affect	.90	.89	.91
Fear	.87	.85	.85
Guilt	.88	.84	.90
Anger	.77	.88	.86
Disgust	.84	.93	.85

In the second part, which was identical for all participants, following measures were administered (in the order of appearance):

1) Moral Foundations Questionnaire (Graham et al., 2011; Polish adaptation: Jarmakowski-Kostrzanowski & Jarmakowska-Kostrzanowska, 2016) - a 30-item measure of five moral foundations (harm/care, fairness/reciprocity, ingroup/loyalty, authority/respect, purity/sanctity). Participants are asked to indicate how relevant the statements are to their moral decisions (e.g., *Whether or not someone cared for someone weak or vulnerable* - 15 items) and to indicate the extent of agreement with the statements (e.g., *Compassion*

for those who are suffering is the most crucial virtue - 15 items) on a scale from 1 (*not at all relevant/strongly disagree*) to 6 (*extremely relevant/strongly agree*). Progressivism, an additional scale calculated by subtracting the mean of ingroup, authority, and purity foundations from the mean of harm and fairness, was also included in the later analyses. The reliability was the lowest for fairness (.65) and the highest for purity (.82), and overall satisfactory.

2) Religious Orientation Scales (Allport & Ross, 1967; Batson & Schoenrade, 1991; Polish adaptation: Socha, 1992) - a 32-item combination of two questionnaires measuring three types of religious orientations: intrinsic (e.g., *My religious beliefs are what really lie behind my whole approach to life*), extrinsic (e.g., *I pray chiefly because I have been taught to pray*), and quest (e.g., *For me, doubting is an important part of what it means to be religious*). Statements are evaluated on a scale from 1 (*disagree*) to 5 (*agree*). Reliability of the scales ranges from .73 for quest orientation to .95 for intrinsic orientation.
3) Concept of the Divine - an extended, 30-item version of the Views of God scale (Shariff & Norenzayan, 2011; see Appendix G). Participants are asked to indicate how relevant the presented adjectives (e.g., *loving*, *vengeful, self-sacrificing)* are to their understanding of God (either one's own or, if one is an atheist, the understanding of God in one's culture). Respondents can choose their answer from a scale of 1 (*not at all relevant*) to 7 (*extremely relevant*). Both subscales, measuring benevolent and malevolent image of God, are highly reliable (respectively .97 and .92).
4) Religious Fundamentalism Scale (Altemeyer & Hunsberger, 1992; Polish adaptation: Besta & Błażek, 2007) - a 20-item self-report measure of religious fundamentalism (e.g., *To lead the best, most meaningful life, one must belong to the one, true religion* or *God will punish most severely those who abandon his true religion)*. Participants indicate their

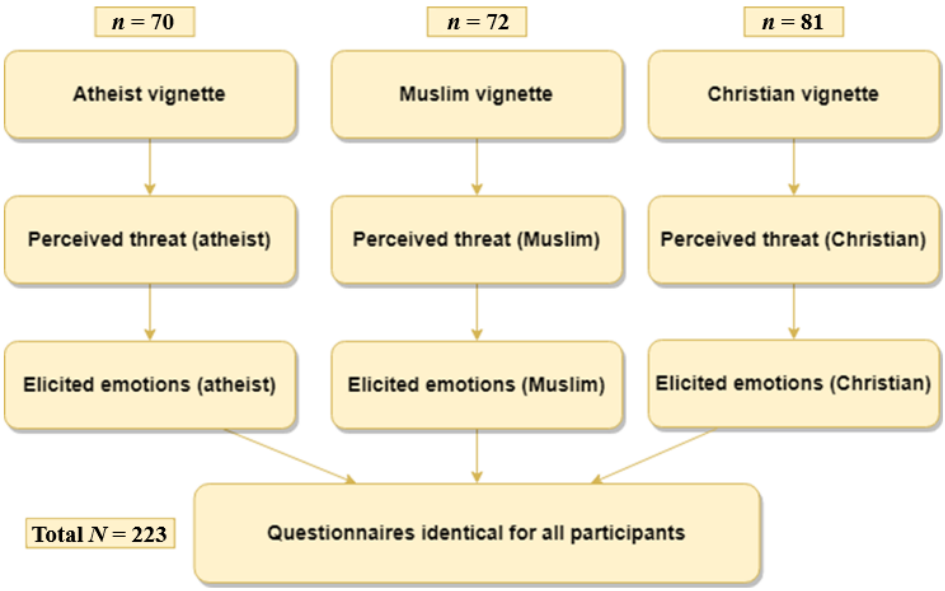
responses on a scale from 1 (*definitely no*) to 7 (*definitely yes*). Cronbach's α is equal to .93.

5) Post-Critical Belief Scale (Duriez, Fontaine, & Hutsebaut, 2000; Polish adaptation: Bartczuk, Zarzycka, & Wiechetek, 2013) - a 33-item measure of four belief attitudes: orthodoxy (literal belief, e.g., *Even though this goes against modern rationality, I believe Mary truly was a virgin when she gave birth to Jesus*), second naïveté (symbolic belief, e.g., *The Bible is a guide, full of signs in the search for God, and not a historical account*), external critique (literal disbelief, e.g., *The world of Bible stories is so far removed from us, that it has little relevance*), and relativism (symbolic disbelief, e.g., *Official Church doctrine and other statements about the absolute will always remain relative because they are pronounced by human beings at a certain period of time*). Response scale ranges from 1 (*strongly disagree*) to 7 (*strongly agree*). Overall, reliability is satisfactory, with the lowest coefficient of Cronbach's α equal to .73 (relativism) and the highest equal to .91 (external critique).
6) four items measuring lay theory of origins of morality and function of religion - the idea of including these statements was inspired by the participants' answers to the pilot study's open-ended question. Some of the responses implied that it is not possible to behave morally if one does not believe in God. For that reason, four items were added to the study to analyze this belief in an exploratory manner. Two of them were quotes taken from the respondents of the pilot study (*If there is no God, then there is also no good or evil* and *Religion is connected with rules, which lead us to a better life*), and the other two were developed for the purpose of the study (*God is the source of morality* and *Non-believers cannot behave in a moral way*). Participants answer using a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Reliability of the scale created by calculating a mean of these statements is equal to .65.

7) demographics - respondents were asked to provide information on their gender, age, education, and political worldview (measured on a seven-point scale, where 1 corresponds to a left-wing worldview and 7 to a right-wing one).

Figure 2

Outline of Study 1



Descriptive Statistics and Normality Tests

Before conducting the core analyses, descriptive statistics (mean, median, standard deviation, minimal and maximal values) were calculated for each of the variables. Normality of the distributions was checked as well using the Shapiro-Wilk test (see Appendix H for the results).

Comparison of the Target Groups Perception

Participants were first compared in terms of their general evaluation of the target groups, the extent to which they saw the target groups as posing certain types of threat as well as emotions elicited by the target groups. These analyses were performed for the religious and non-religious participants separately. The intrinsic religiosity score was used as the basis for the group allocation. Respondents with a score lower than 3.11 were assigned to the non-

religious group (n = 183), while those with a score equal to or higher than 3.11 (that is, all scores higher than the neutral middle point of the scale) to the religious one (n = 40). Due to the non-normality of the distributions and violations of homogeneity of variance for some of the variables, Kruskal-Wallis test was used along with the one-way analysis of variance (Kraska-Miller, 2014). In terms of post-hoc comparisons, Dunn-Bonferroni and Bonferroni procedures were used, respectively (Dinno, 2015).

Religious Participants

Table 6 presents the results of the comparison of the target groups perception for the respondents who are religious.

Table 6

Comparison of General Attitude Towards Target Groups, Perceived Threat, and Elicited Emotions Among Religious Participants

Scale	n = 13		n = 12		n = 15		CH-AT	CH-MU	AT-MU
	M_{CH}	SD_{CH}	M_{MU}	SD_{MU}	M_{AT}	SD_{AT}			
General attitude	1.99	0.49	3.26	0.53	2.47	0.39	.029	< .001	< .001
Threat to safety	1.54	1.03	3.38	0.88	1.51	0.67	*ns*	< .001	.001
Threat of disrespect	2.48	0.77	3.77	0.62	2.70	0.47	*ns*	< .001	< .001
Threat to trust	2.03	0.55	3.12	0.49	2.63	0.60	*ns*	< .001	*ns*
Positive affect	2.71	0.83	2.32	0.59	2.26	0.80	*ns*	*ns*	*ns*
Negative affect	1.31	0.48	1.93	0.56	1.47	0.71	*ns*	.007	*ns*
Fear	1.22	0.39	1.92	0.66	1.39	0.68	*ns*	.005	.030
Guilt	1.35	0.42	1.35	0.55	1.30	0.78	*ns*	*ns*	*ns*
Anger	1.28	0.57	2.03	0.76	1.33	0.64	*ns*	.013	.018
Disgust	1.13	0.37	1.64	1.05	1.38	0.78	*ns*	*ns*	*ns*

Note. CH - Christian target group, MU - Muslim target group, AT - atheist target group, CH-AT - difference between Christians and atheists, CH-MU - difference between Christians and Muslims, AT-MU - difference between atheists and Muslims.

General Attitude. A significant difference in mean general attitude towards target groups was found, $F(2, 37) = 23.25$, $p < .001$. Religious respondents' attitude was the least negative in the case of Christians and the most negative for Muslims, with atheists placing in the middle.

Perceived Threat. With regard to threat perception, religious participants significantly differed in their evaluation of threat to safety, $H(2) = 19.12$, $p < .001$, and threat of disrespect, $F(2, 37) = 15.15$, $p < .001$. Appraisal of atheists and Christians did not differ significantly, but at the same time those two target groups were seen as significantly less threatening safety and less disrespectful when compared to Muslims. Another significant difference emerged in perceived threat to trust, $H(2) = 17.43$, $p < .001$. Namely, religious participants saw Christians as threatening trust to a lesser extent than Muslims.

Elicited Emotions. No difference in positive affect, $F(2, 37) = 1.40$, $p = .259$, guilt, $H(2) = 1.39$, $p = .499$, and disgust, $H(2) = 2.82$, $p = .245$, has been found. However, religious participants differed in the level of negative affect, $H(2) = 9.91$, $p = .007$, fear, $H(2) = 11.10$, $p = .004$, and anger, $H(2) = 10.18$, $p = .006$. With regard to fear and anger, appraisal of atheists and Christians did not differ significantly, and Muslims were evaluated as eliciting these emotions to a higher degree than the other two target groups. As for the negative affect, the only significant difference was the one between Christians and Muslims, with respondents reporting a higher level of negative emotions towards the latter.

Non-Religious Participants

Table 7 contains results of the comparison for the non-religious respondents.

Table 7

Comparison of General Attitude Towards Target Groups, Perceived Threat, and Elicited Emotions Among Non-Religious Participants

Scale	$n = 68$		$n = 60$		$n = 55$		CH-AT	CH-MU	AT-MU
	M_{CH}	SD_{CH}	M_{MU}	SD_{MU}	M_{AT}	SD_{AT}			
General attitude	2.67	0.57	2.96	0.71	1.99	0.46	< .001	*ns*	< .001
Threat to safety	2.12	0.93	2.91	1.13	1.24	0.48	< .001	.001	< .001
Threat of disrespect	3.38	0.93	3.36	0.89	2.28	0.81	< .001	*ns*	< .001
Threat to trust	2.65	0.61	2.87	0.77	2.20	0.62	.001	*ns*	< .001
Positive affect	1.95	0.81	2.22	0.77	2.51	0.95	.001	*ns*	*ns*
Negative affect	1.60	0.74	2.01	0.90	1.19	0.42	< .001	*ns*	< .001
Fear	1.52	0.70	2.02	0.98	1.20	0.38	*ns*	.004	< .001
Guilt	1.41	0.69	1.46	0.67	1.09	0.26	.006	*ns*	< .001
Anger	1.84	1.00	2.04	1.23	1.21	0.60	< .001	*ns*	< .001
Disgust	1.62	0.87	2.04	1.34	1.13	0.42	< .001	*ns*	< .001

Note. CH - Christian target group, MU - Muslim target group, AT - atheist target group, CH-AT - difference between Christians and atheists, CH-MU - difference between Christians and Muslims, AT-MU - difference between atheists and Muslims.

General Attitude. Non-religious participants differed significantly in their general attitude towards target groups, $H(2) = 60.28$, $p < .001$. Atheists received the least negative evaluation, it was significantly lower than those of Christians and Muslims (between whom, in turn, there was no significant difference, though the followers of Islam were still perceived least favorably). No mean exceeded the middle point of the response scale (3).

Perceived Threat. Non-religious participants also differed in the extent to which they perceived target groups as a threat to safety, $H(2) = 72.11$, $p < .001$, and trust, $F(2, 180) =$

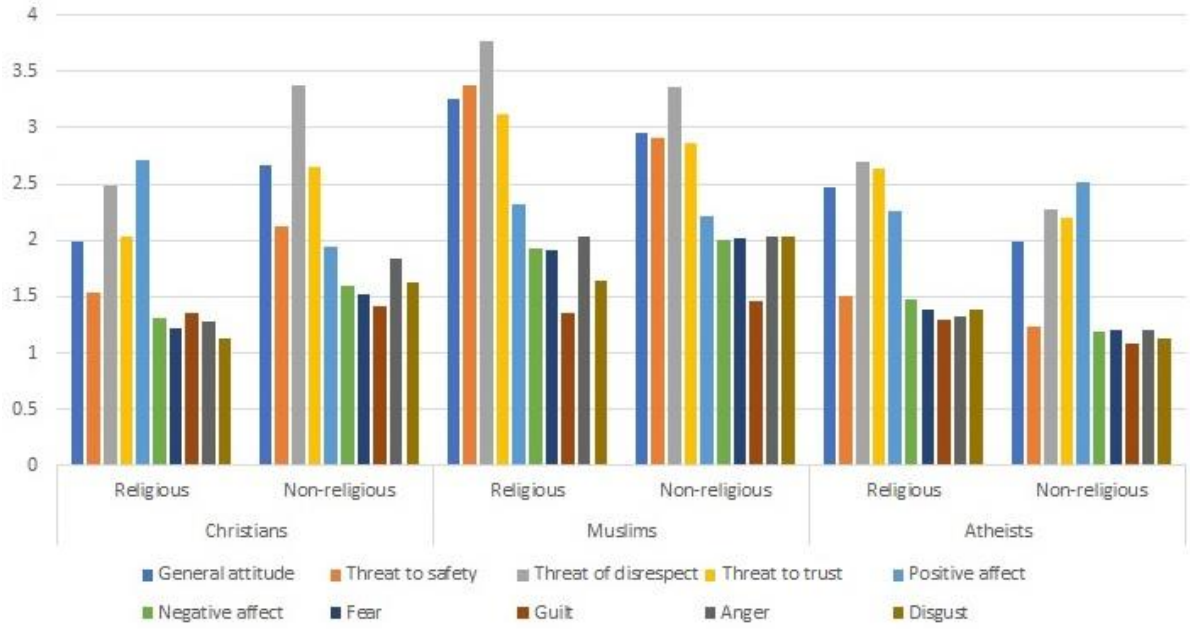
14.87, $p < .001$, as well as in terms of threat of disrespect, $H(2) = 45.01$, $p < .001$. Safety was seen as being the least threatened by atheists, followed by Christians and Muslims, the latter considered to be the most threatening. A similar pattern was observed for threat of disrespect and threat to trust: the non-religious evaluated atheists as less disrespectful and less threatening their trust as compared to Christians and Muslims. However, unlike the case of safety, the average appraisal of Christians and Muslims did not differ significantly. Again, the means mostly did not exceed the neutral point of 3 (with the exception of threat of disrespect).

Elicited Emotions. Significant differences were observed for all emotion scales: positive affect, $H(2) = 13.39$, $p = .001$, negative affect, $H(2) = 40.30$, $p < .001$, fear, $H(2) = 29.07$, $p < .001$, guilt, $H(2) = 20.52$, $p < .001$, anger, $H(2) = 29.57$, $p < .001$, and disgust, $H(2) = 32.27$, $p < .001$. Christians elicited significantly lower positive affect compared to atheists, but no other difference emerged in that regard. Additionally, reported negative affect, fear, guilt, anger, and disgust were all significantly higher for Muslims than for atheists. In turn, Christians only differed from Muslims in terms of fear, which was more strongly elicited by followers of Islam. Lastly, atheists evoked significantly lower levels of negative affect, guilt, anger, and disgust, but not fear, when compared to Christians.

Figure 3 presents the means of general attitude, perceived threat, and elicited emotions for each of the three target groups, separately for religious and non-religious participants.

Figure 3

Average Level of General Attitude, Perceived Threat, and Elicited Emotions for Target Groups Among Religious and Non-Religious Respondents



Correlation Analysis - Testing the Threat-Emotion Profile of Anti-Atheism and the Religiosity - Anti-Atheism Link

In the next step, a correlation analysis was performed to verify the hypothesized threat-emotion profile (threat to trust - anger) of anti-atheist prejudice and the positive link between religiosity and anti-atheism. Due to the small sample size in religious participants subgroup (15 respondents in atheist condition, 12 in Muslim condition, and 13 in Christian one; 40 in total), all of the analyses were computed on the full sample. First, the relationship between general attitude towards target groups and religious orientations was investigated (Table 8). Subsequently, partial correlation[22] coefficients controlling for intrinsic religious orientation were calculated between: general attitude towards target groups and threat types (Table 9), general attitude towards target groups and elicited emotions (Table 10), threat

[22] As the sample sizes for each of the conditions (Christian, Muslim, atheist) in the religious subgroup were very small, the correlation coefficients were computed for the whole sample (both religious and non-religious participants) and controlled for the effect of religiosity, hence partial correlations.

types and elicited emotions (Table 11) as well as general attitude towards target groups and religiosity-related concepts (i.e., post-critical beliefs, moral foundations, image of God, and religious fundamentalism; Table 12). Depending on the normality of the distributions of the variables correlated, either Pearson's *r* or Spearman's *rho* coefficients were calculated.

Table 8

Correlation Coefficients for General Attitude Towards Target Groups and Religious Orientations

Scale	Christian	Muslim	Atheist
Extrinsic religiosity	-.38***	-.09	.29*
Intrinsic religiosity	-.45***	.04	.44***
Quest religiosity	-.30**	.09	.15

*$p < .05$, **$p < .01$, ***$p < .001$

General attitude towards Christians correlated negatively with all types of religious orientations, most strongly with intrinsic religiosity and least strongly with quest religiosity. Additionally, a positive relationship was observed between general attitude towards atheists and two religious orientations: extrinsic and intrinsic, the latter being a stronger link. Strength of these correlations varied from weak to moderate. Interestingly, general attitude towards Muslims was not significantly related to any of the religious orientation types. Overall, the results indicate that the more religious the participants are (especially if their religious orientation is intrinsic), the less negative their attitude towards Christians is, and, at the same time, the more negative their attitude towards atheists.

Table 9

Partial Correlation Coefficients for General Attitude Towards Target Groups and Threat Types

Scale	Christian	Muslim	Atheist
Threat to safety	.70***	.85***	.64***
Threat of disrespect	.80***	.86***	.74***
Threat to trust	.86***	.86***	.79***

***$p < .001$

Both perceived threat to safety and threat to trust as well as perceived threat of disrespect correlated positively with general attitude towards all target groups: Christians, Muslims, and atheists. The correlations were all strong or very strong, and the highest coefficients were the ones for attitude towards followers of Islam. In other words, perceiving target groups as threatening trust and safety or as disrespectful is connected to more negative attitudes towards them.

Table 10

Partial Correlation Coefficients for General Attitude Towards Target Groups and Elicited Emotions

Scale	Christian	Muslim	Atheist
Positive affect	-.21	-.06	-.10
Negative affect	.50***	.61***	.41***
Fear	.53***	.56***	.41***
Guilt	.24*	.17	.31*
Anger	.57***	.72***	.39**
Disgust	.55***	.68***	.37**

*$p < .05$, **$p < .01$, ***$p < .001$

Negative affect, fear, anger, and disgust were all positively correlated with general attitude towards Christians, Muslims, and atheists. What is important to note, the coefficients were the highest for Muslims and the lowest for atheists, with overall strength varying from moderate to very strong. Guilt was positively related, though rather weakly or moderately, to general attitude towards Christians and atheists, but not Muslims. Moreover, out of six emotion scales, only positive affect was found to be uncorrelated with attitude towards target groups. The results suggest that participants who exhibit more negative attitude towards target groups also report stronger negative affect towards them, especially fear, anger, and disgust.

Table 11

Partial Correlation Coefficients for Threat Types and Elicited Emotions for Each Target Group

Group	Scale	Threat to safety	Threat of disrespect	Threat to trust
Christian	Positive affect	-.21	-.18	-.19
	Negative affect	.45***	.48***	.30**
	Fear	.50***	.44***	.34**
	Guilt	.30**	.26*	.10
	Anger	.42***	.53***	.34**
	Disgust	.41***	.46***	.38**
Muslim	Positive affect	-.10	-.09	-.13
	Negative affect	.54***	.41***	.57***
	Fear	.53***	.41***	.50***
	Guilt	.20	.08	.22
	Anger	.64***	.51***	.65***

Group	Scale	Threat to safety	Threat of disrespect	Threat to trust
	Disgust	.65***	.51***	.52***
Atheist	Positive affect	.05	-.10	-.13
	Negative affect	.32**	.28*	.31*
	Fear	.33**	.25*	.31**
	Guilt	.27*	.31*	.17
	Anger	.45***	.21	.24*
	Disgust	.29*	.35**	.21

*$p < .05$, **$p < .01$, ***$p < .001$

Relationships between perceived threats and elicited emotions were tested for each of the target groups. The correlational patterns were very similar across conditions. General negative affect, fear, guilt, anger, and disgust all correlated positively with perceived threat to safety and trust as well as with perceived threat of disrespect. There were a few exceptions, though. In the case of atheists, perceived threat to trust was not related to guilt or disgust, while anger did not correlate with perceived threat of disrespect. Moreover, no significant relationship between guilt and threat dimensions was found for Muslim condition, whereas perceived threat to trust was not linked to guilt in the Christian condition. Additionally, positive affect was not significantly associated with perceived threats in any of the three conditions. The coefficients' strength ranged from weak to strong. Again, correlations in the atheist condition were the weakest, while the strongest ones were found for the Muslim condition. Taking these results together, it seems that the stronger the negative affect is (in particular fear, anger, disgust, and, to a lesser extent, guilt), the stronger the perceptions of threat to safety and trust as well as perceptions of threat of disrespect posed by the target groups.

Table 12

Partial Correlation Coefficients for General Attitude Towards Target Groups and Religiosity-Related Concepts

Scale	Christian	Muslim	Atheist
Orthodoxy	-.21	.13	.39**
Second naïveté	-.12	.21	.19
Relativism	.10	-.01	-.28*
External critique	.27*	.03	-.22
Harm	.17	-.09	-.31*
Fairness	.20	-.19	-.42***
Ingroup	-.48***	.31**	.01
Authority	-.31**	.24*	.17
Purity	-.26*	.21	.29*
Progressivism	.41***	-.34**	-.40**
Benevolent image of God	-.40***	.07	.24*
Malevolent image of God	.49***	-.12	.10
Religious fundamentalism	-.36**	.13	.44***

*$p < .05$, **$p < .01$, ***$p < .001$

General attitude towards Christians was found to be positively correlated to external critique, progressivism, and negative image of God as well as negatively related to three types of moral foundations (ingroup, authority, and purity), positive image of God, and religious fundamentalism. According to these results, respondents who declare a more negative attitude towards Christians exhibit higher literal disbelief in religious/faith-related notions, are more progressivist, and perceive God in a more negative way. Additionally, the more negative this attitude is, the lower the endorsement of religious fundamentalism and the

moral foundations of ingroup, authority, and purity as well as the less positive the perception of God.

Regarding the Muslim condition, general attitude towards this target group was positively linked to ingroup/loyalty and authority moral foundations as well as negatively related to progressivism. What follows is that participants who declare a more negative attitude towards Muslims endorse ingroup/loyalty and authority more strongly while rejecting progressivism.

Finally, in the atheist condition a positive association between general attitude and religious orthodoxy, purity moral foundation, positive image of God, and religious fundamentalism was found. This indicates that a more negative attitude towards atheists is linked with stronger literal belief, stronger endorsement of purity and fundamentalism, and a more positive perception of God. At the same time, general attitude correlated negatively with relativism, harm, fairness, and progressivism moral foundations. According to these results, the more negative one's attitude towards atheists is, the less relativist and symbolic their approach to religion and the weaker their endorsement of harm, fairness, and progressivism.

The aforementioned correlations were moderate at most.

Regression Analyses - Testing the Threat-Emotion Profile of Anti-Atheism

In the next step, a multiple regression analysis was conducted. Emotion indices were regressed on the perceived threat scales to test the threat-emotion profiles postulated by Cottrell and Neuberg (2005; see Table 2, p. 45) and in particular - the hypothesized threat to trust-anger profile of anti-atheist prejudice. The analyses were performed on different subsamples (depending on participants' religiosity and the condition they were assigned to) and on the whole sample, resulting in 12 sets of regression coefficients for each predicted emotion: anger (Table 13), fear (Table 14), disgust (Table 15), and guilt (Table 16). As the

issue of multicollinearity could potentially emerge, variance inflation factor (VIF) values were computed. Across all the regression analyses, no VIF exceeded a value of 3, which ruled out significant problems with predictor intercorrelations. Standard method of entry was used.

Table 13

Multiple Regression of Anger

Group	Predictor	Whole sample			Religious participants			Non-religious participants		
		B	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
All	S	**0.43**	**0.06**	**.48*****	**0.50**	**0.10**	**.83*****	**0.42**	**0.08**	**.45*****
	D	**0.20**	**0.08**	**.20***	0.02	0.14	.03	**0.21**	**0.09**	**.21***
	T	0.00	0.10	.00	-0.13	0.13	-.13	0.03	0.13	.02
	R^2		.40			.59			.38	
	F		49.91***			19.72***			38.06***	
Atheist	S	**0.56**	**0.12**	**.50*****	**0.77**	**0.20**	**.80****	**0.49**	**0.16**	**.40****
	D	**0.26**	**0.09**	**.33****	-0.22	0.27	-.16	**0.29**	**0.10**	**.40****
	T	-0.11	0.10	-.12	-0.25	0.20	-.23	-0.05	0.13	-.06
	R^2		.39			.52			.37	
	F		15.86***			6.13*			11.34***	
Muslim	S	**0.65**	**0.14**	**.61*****	0.32	0.28	.37	**0.68**	**0.16**	**.63*****
	D	-0.09	0.20	-.07	0.02	0.30	.02	-0.08	0.23	-.06
	T	0.17	0.22	.11	0.71	0.50	.46	0.14	0.24	.09
	R^2		.39			.46			.38	
	F		15.79***			4.07*			13.25***	

Group	Predictor	Whole sample			Religious participants			Non-religious participants		
		B	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
Christian	S	**0.31**	**0.12**	**.31***	**0.41**	**0.11**	**.73****	**0.30**	**0.15**	**.28***
	D	**0.31**	**0.14**	**.31***	0.32	0.14	.42	0.28	0.17	.26
	T	-0.04	0.21	-.03	**-0.41**	**0.18**	**-.39***	0.01	0.25	.01
	R^2		.26			.76			.19	
	F		10.23***			13.36**			6.21**	

Note. S - perceived threat to safety, D - perceived threat of disrespect, T - perceived threat to trust.

*$p < .05$, **$p < .01$, ***$p < .001$

Anger was consistently predicted by perceived threat to safety (in 11 out of 12 regression models), with β coefficients ranging from .28 to .83. Moreover, in five of these models perceived threat to safety was the only predictor (R^2 ranging from .19 to .59). In the six remaining models, there was one additional predictor - threat of disrespect (five models) or threat to trust (one model). In most of the cases, threat to safety was the stronger predictor. Additionally, no predictors were significant in one of the models (Muslim target group - religious participants). Contrary to expectations, not only was anger not exclusively or most strongly predicted by threat to trust, but threat to trust was a significant predictor in only one out of 12 models.

Table 14

Multiple Regression of Fear

Group	Predictor	Whole sample			Religious participants			Non-religious participants		
		B	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
All	S	**0.40**	**0.05**	**.58*****	**0.46**	**0.09**	**.86*****	**0.39**	**0.06**	**.55*****
	D	0.05	0.06	.07	-0.12	0.13	-.15	0.07	0.07	.09
	T	0.02	0.08	.02	-0.01	0.13	-.01	0.02	0.10	.02
	R^2		.39			.52			.37	
	F		48.64***			15.25***			36.80***	
Atheist	S	**0.56**	**0.09**	**.64*****	**0.75**	**0.22**	**.73****	**0.40**	**0.10**	**.51*****
	D	0.06	0.07	.11	0.02	0.30	.01	0.05	0.06	.10
	T	-0.07	0.08	-.09	-0.22	0.22	-.19	0.03	0.09	.06
	R^2		.41			.49			.31	
	F		16.97***			5.44*			9.18***	
Muslim	S	**0.47**	**0.12**	**.55*****	0.48	0.28	.64	**0.47**	**0.14**	**.54****
	D	-0.06	0.17	-.05	-0.22	0.30	-.21	0.00	0.20	.00
	T	0.06	0.19	.05	0.21	0.50	.15	0.03	0.21	.02
	R^2		.27			.28			.27	
	F		9.65***			2.45			8.11***	
Christian	S	**0.24**	**0.09**	**.34****	**0.29**	**0.07**	**.76****	**0.23**	**0.10**	**.31***
	D	0.17	0.10	.25	-0.09	0.09	-.17	0.22	0.12	.29
	T	0.01	0.15	.01	**0.28**	**0.12**	**.39***	-0.07	0.18	-.06
	R^2		.25			.78			.20	
	F		9.73***			15.43**			6.57**	

Note. S - perceived threat to safety, D - perceived threat of disrespect, T - perceived threat to trust.

*$p < .05$, **$p < .01$, ***$p < .001$

A very clear picture emerged for fear. In 10 out of 12 models, it was exclusively predicted by perceived threat to safety, with β coefficients ranging from .31 to .86 and R^2 ranging from .20 to .52. Out of the two remaining models, one included two predictors (threat to safety and trust; Christian target group - religious participants), while the other had none (Muslim target group - religious participants). These findings support the perceived threat to safety-fear link, one of the threat-emotion profiles which were proposed in the sociofunctional approach to prejudice.

Table 15

Multiple Regression of Disgust

Group	Predictor	Whole sample			Religious participants			Non-religious participants		
		B	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
All	S	**0.47**	**0.07**	**.53*** **	**0.51**	**0.14**	**.79****	**0.49**	**0.08**	**.53*** **
	D	0.14	0.08	.14	-0.15	0.19	-.15	0.15	0.09	.15
	T	-0.06	0.11	-.04	-0.23	0.19	-.20	-0.03	0.12	-.02
	R^2		.36			.30			.38	
	F		42.91***			6.68**			38.29***	
Atheist	S	**0.51**	**0.10**	**.52*** **	**0.84**	**0.20**	**.72****	**0.25**	**0.11**	**.29***
	D	**0.27**	**0.07**	**.40*** **	0.02	0.27	.01	**0.25**	**0.07**	**.48*** **
	T	**-0.19**	**0.09**	**-.23***	**-0.54**	**0.20**	**-.42***	-0.01	0.09	-.01
	R^2		.45			.67			.39	
	F		19.86***			10.60**			12.26***	

Group	Predictor	Whole sample			Religious participants			Non-religious participants		
		B	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
Muslim	S	**0.77**	**0.16**	**.65*** **	**1.25**	**0.40**	**1.05***	**0.76**	**0.18**	**.64*** **
	D	0.05	0.23	.03	0.04	0.43	.02	0.08	0.26	.05
	T	-0.18	0.25	-.10	-1.19	0.70	-.55	-0.12	0.27	-.07
	R^2		.35			.44			.37	
	F		13.55***			3.89			12.73***	
Christian	S	**0.25**	**0.11**	**.29***	0.17	0.09	.48	**0.28**	**0.13**	**.30***
	D	0.11	0.13	.12	-0.25	0.11	-.51	0.16	0.15	.17
	T	0.18	0.19	.13	**0.50**	**0.14**	**.72****	0.06	0.23	.04
	R^2		.19			.63			.16	
	F		7.39***			7.85**			5.15**	

Note. S - perceived threat to safety, D - perceived threat of disrespect, T - perceived threat to trust.

*$p < .05$, **$p < .01$, ***$p < .001$

Threat to safety was the only significant predictor for disgust in eight out of 12 computed regression models (β coefficients ranging from .29 to 1.05, R^2 ranging from .16 to .44). Models calculated for the atheist target group were not as simple and had two or three predictors, with perceived threat to safety being the strongest predictor in two of the three cases. Lastly, in one of the models disgust was significantly and exclusively predicted by perceived threat to trust (religious participants who were assigned to Christian target group condition). In other words, no conclusive evidence for the perceived threat of contamination (here represented by threat of disrespect) - disgust profile (as postulated in the sociofunctional approach to prejudice) was found as disgust was more strongly predicted by perceived threat of disrespect in only one out of 12 models.

Table 16

Multiple Regression of Guilt

Group	Predictor	Whole sample			Religious participants			Non-religious participants		
		B	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
All	S	**0.24**	**0.05**	**.45*****	**0.35**	**0.11**	**.71****	**0.23**	**0.05**	**.42*****
	D	0.07	0.06	.12	-0.10	0.16	-.14	0.09	0.06	.15
	T	**-0.24**	**0.07**	**-.28****	-0.27	0.15	-.31	**-0.24**	**0.09**	**-.28****
	R^2		.15			.21			.14	
	F		14.52***			4.40*			10.63***	
Atheist	S	**0.45**	**0.09**	**.56*****	**0.96**	**0.17**	**.82*****	0.08	0.08	.15
	D	**0.14**	**0.06**	**.26***	0.08	0.24	.05	**0.12**	**0.05**	**.39***
	T	**-0.19**	**0.08**	**-.29***	-0.35	0.17	-.27	-0.02	0.07	-.04
	R^2		.36			.76			.15	
	F		14.06***			15.74***			4.22*	
Muslim	S	**0.36**	**0.09**	**.61*****	0.31	0.25	.49	**0.35**	**0.11**	**.58****
	D	-0.23	0.13	-.31	-0.31	0.27	-.34	-0.18	0.15	-.24
	T	-0.16	0.14	-.18	0.32	0.44	.28	-0.21	0.16	-.24
	R^2		.14			.21			.12	
	F		4.88**			1.97			3.76*	
Christian	S	**0.21**	**0.09**	**.31***	0.08	0.15	.19	**0.22**	**0.11**	**.30***
	D	0.15	0.11	.22	0.22	0.19	.42	0.15	0.12	.21
	T	**-0.33**	**0.16**	**-.32***	0.04	0.25	.05	**-0.40**	**0.19**	**-.35***
	R^2		.08			.12			.07	
	F		3.36*			1.57			2.78*	

Note. S - perceived threat to safety, D - perceived threat of disrespect, T - perceived threat to trust.

*$p < .05$, **$p < .01$, ***$p < .001$

In line with the sociofunctional approach to prejudice, guilt is the main emotional response when ingroup's morality is being questioned and does not appear as a secondary reaction to any other kind of threat. As no such threat was measured in the study, one could expect that no model predicting guilt would achieve significance. However, that was not the case. Four of the models included perceived threat to safety as the sole predictor of this emotion (with β coefficients ranging between .58 and .82, and R^2 ranging from .12 to .76), while another two had no significant predictors (religious participants in Muslim and Christian conditions). Regarding the remaining six models, one included all three predictors, four comprised of perceived threat to safety and trust, and the last one consisted of perceived threat of disrespect only.

Mediation Analyses

Mediation analyses were conducted using PROCESS macro for SPSS (version 3.3, Hayes, 2018). Their aim was twofold: to further test the threat-emotion profile hypothesis and to explore the relationship between intrinsic religiosity and anti-atheist prejudice in more detail. Bootstrapping (10,000 samples, with 95% percentile confidence intervals) was used to test the statistical significance of the indirect effects.

Testing the Threat-Emotion Profiles

In the first step, 18 simple mediation models were computed for each of the target groups to check every possible combination of perceived threat (trust, safety, disrespect) and elicited emotions (fear, anger, guilt, disgust, positive and negative affect). Perceived threats were entered as independent variables, emotions - as mediators, and attitude towards the target group - as dependent variables.

Atheists. Interestingly, no significant mediation was found for perceived threat to safety or trust. However, as presented in Table 17, the relationship between perceived threat of disrespect and anti-atheist prejudice was partially mediated by anger, fear, disgust, and negative affect. All of the effect sizes were positive and medium, except the one for fear, which was small. In other words, perceiving atheists as disrespectful is linked to a more intense experience of anger, fear, disgust, and negative affect. In turn, these emotions are related to a more negative attitude towards atheists.

Muslims. Analyses for the Muslim target group revealed that emotions elicited by that group mediated the relationship between each of the three types of perceived threat and general attitude towards the followers of Islam. Firstly, the link between perceived threat to trust and anti-Muslim prejudice was partially mediated by anger and disgust, with the indirect effect being stronger for the former, but both being of medium strength and positive. With regard to perceived threat to safety, only anger emerged as a partial mediator of its relationship with general attitude towards Muslims, and the respective effect size was positive and medium. Finally, anger, fear, disgust, and negative affect all partially mediated the link between perceived threat of disrespect and anti-Muslim prejudice. Again, all effect sizes were positive and medium, with the one for anger being the strongest. Generally, as was the case for the atheist target group, perception of threat is associated with elicited emotions, which in turn are linked to prejudice.

Christians. Analyses for the Christian target group revealed the highest number of partial mediations. As shown in Table 19, perceived threat to trust was linked to general attitude towards Christians through anger, fear, disgust, and negative affect. All effect sizes were positive, but differed in strength (medium for anger, small for all other emotions). Next, the relationship between perceived threat to safety and anti-Christian prejudice was mediated by anger, fear, disgust, and positive affect. Most of the effect sizes were medium (apart from

the one for positive affect, which was small) and positive. Finally, anger and disgust mediated the link between perceived threat of disrespect and general attitude towards Christians, and the respective effect sizes were small and positive. In summary, it can be once again said that the stronger the perception of threat is, the more intense the elicited emotions, and in turn, the more negative the attitude. The only emotion that it does not apply to is positive affect - perceiving Christians as threatening safety was linked to lower positive affect, but at the same time positive affect towards Christians was connected to less negative attitude.

Table 17

Simple Mediation Analyses for the Relationship Between Perceived Threat of Disrespect and Anti-Atheist Prejudice (n = 70)

Mediator	Path					
	a	*b*	*c'*	*c*	*ab* [95% CI]	Standardized *ab* [95% CI]
Anger	0.37***	0.18*	0.41***	0.47***	**0.07 [0.00, 0.13]**	**0.10 [0.00, 0.21]**
Fear	0.19**	0.23*	0.43***	0.47***	**0.05 [0.00, 0.10]**	**0.07 [0.00, 0.15]**
Guilt	0.19**	0.15	0.44***	0.47***	0.03 [-0.00, 0.07]	0.05 [-0.00, 0.11]
Disgust	0.34***	0.18*	0.41***	0.47***	**0.06 [0.01, 0.11]**	**0.10 [0.02, 0.18]**
PA	-0.10	-0.01	0.47***	0.47***	0.00 [-0.02, 0.02]	0.00 [-0.03, 0.03]
NA	0.25***	0.24**	0.41***	0.47***	**0.06 [0.01, 0.12]**	**0.10 [0.02, 0.19]**

Note. PA - positive affect, NA - negative affect, *a* - effect of the IV on the mediator, *b* - effect of the mediator on the DV, *c'* - direct effect of the IV on the DV, *c* - total effect of the IV on the DV, *ab* - indirect effect of the IV on the DV through the mediator, CI - confidence interval.

*$p < .05$, **$p < .01$, ***$p < .001$

Table 18

Simple Mediation Analyses for the Relationship Between Perceived Threat and Anti-Muslim Prejudice (n = 72)

Threat type	Mediator	Path					
		a	*b*	*c'*	*c*	*ab* [95% CI]	Standardized *ab* [95% CI]
Threat to trust	Anger	0.71***	0.20***	0.66***	0.80***	**0.14 [0.04, 0.19]**	**0.15 [0.04, 0.20]**
	Fear	0.45**	0.18***	0.72***	0.80***	0.08 [-0.02, 0.14]	0.09 [-0.02, 0.14]
	Guilt	-0.01	0.13*	0.80***	0.80***	-0.00 [-0.11, 0.01]	-0.00 [-0.13, 0.02]
	Disgust	0.59**	0.18***	0.70***	0.80***	**0.10 [0.03, 0.17]**	**0.11 [0.03, 0.18]**
	PA	-0.20	0.19**	0.84***	0.80***	-0.04 [-0.14, 0.01]	-0.04 [-0.17, 0.01]
	NA	0.49***	0.23***	0.69***	0.80***	0.11 [-0.01, 0.16]	0.12 [-0.01, 0.17]
Threat to safety	Anger	0.67***	0.11*	0.46***	0.53***	**0.07 [0.01, 0.15]**	**0.12 [0.02, 0.23]**
	Fear	0.46***	0.06	0.50***	0.53***	0.03 [-0.04, 0.09]	0.05 [-0.07, 0.13]
	Guilt	0.17*	-0.14*	0.55***	0.53***	-0.02 [-0.08, 0.01]	-0.04 [-0.14, 0.01]
	Disgust	0.72***	0.05	0.49***	0.53***	0.04 [-0.02, 0.12]	0.06 [-0.04, 0.19]
	PA	0.08	-0.06	0.53***	0.53***	-0.01 [-0.04, 0.01]	-0.01 [-0.07, 0.01]

Threat type	Mediator	Path					
		a	*b*	*c'*	*c*	*ab* [95% CI]	Standardized *ab* [95% CI]
	NA	0.46***	0.11	0.48***	0.53***	0.05 [-0.03, 0.12]	0.08 [-0.05, 0.18]
Threat of disrespect	Anger	0.58***	0.20***	0.56***	0.68***	**0.12 [0.07, 0.19]**	**0.15 [0.09, 0.24]**
	Fear	0.39**	0.18***	0.61***	0.68***	**0.07 [0.03, 0.13]**	**0.09 [0.03, 0.16]**
	Guilt	-0.01	0.13*	0.68***	0.68***	-0.00 [-0.02, 0.02]	-0.00 [-0.02, 0.03]
	Disgust	0.62***	0.15***	0.59***	0.68***	**0.09 [0.05, 0.17]**	**0.11 [0.07, 0.21]**
	PA	-0.04	0.06	0.68***	0.68***	-0.00 [-0.02, 0.01]	-0.00 [-0.02, 0.02]
	NA	0.39***	0.24***	0.58***	0.68***	**0.09 [0.04, 0.16]**	**0.12 [0.05, 0.20]**

Note. PA - positive affect, NA - negative affect, *a* - effect of the IV on the mediator, *b* - effect of the mediator on the DV, *c'* - direct effect of the IV on the DV, *c* - total effect of the IV on the DV, *ab* - indirect effect of the IV on the DV through the mediator, CI - confidence interval.

*$p < .05$, **$p < .01$, ***$p < .001$

Table 19

Simple Mediation Analyses for the Relationship Between Perceived Threat and Anti-Christian Prejudice (n = 81)

Threat type	Mediator	Path					
		a	*b*	*c'*	*c*	*ab* [95% CI]	Standardized *ab* [95% CI]
Threat to trust	Anger	0.54**	0.16***	0.76***	0.85***	**0.09 [0.03, 0.15]**	**0.09 [0.04, 0.15]**
	Fear	0.38***	0.19***	0.78***	0.85***	**0.07 [0.02, 0.13]**	**0.07 [0.02, 0.13]**
	Guilt	-0.01	0.11*	0.85***	0.85***	-0.00 [-0.02, 0.02]	-0.00 [-0.02, 0.02]
	Disgust	0.50***	0.15***	0.78***	0.85***	**0.07 [0.02, 0.15]**	**0.08 [0.02, 0.15]**
	PA	-0.54***	-0.05	0.82***	0.85***	0.03 [-0.01, 0.09]	0.03 [-0.01, 0.10]
	NA	0.33**	0.18***	0.79***	0.85***	**0.06 [0.02, 0.11]**	**0.06 [0.02, 0.12]**
Threat to safety	Anger	0.48***	0.16**	0.39***	0.46***	**0.08 [0.03, 0.13]**	**0.12 [0.04, 0.21]**
	Fear	0.33***	0.17*	0.40***	0.46***	**0.06 [0.01, 0.11]**	**0.09 [0.02, 0.18]**
	Guilt	0.17*	-0.07	0.47***	0.46***	-0.01 [-0.04, 0.01]	-0.02 [-0.07, 0.01]
	Disgust	0.38***	0.18**	0.40***	0.46***	**0.07 [0.02, 0.14]**	**0.10 [0.02, 0.22]**
	PA	-0.25*	-0.17**	0.42***	0.46***	**0.04 [0.01, 0.11]**	**0.06 [0.01, 0.16]**

Threat type	Mediator	Path					
		a	*b*	*c'*	*c*	*ab* [95% CI]	Standardized *ab* [95% CI]
	NA	0.36***	0.11	0.42***	0.46***	0.04 [-0.00, 0.09]	0.07 [-0.01, 0.14]
Threat of disrespect	Anger	0.47***	0.11**	0.48***	0.53***	**0.05 [0.00, 0.11]**	**0.08 [0.01, 0.17]**
	Fear	0.31***	0.14*	0.49***	0.53***	0.04 [-0.01, 0.10]	0.07 [-0.01, 0.16]
	Guilt	0.12	-0.03	0.54***	0.53***	-0.00 [-0.02, 0.01]	-0.01 [-0.04, 0.02]
	Disgust	0.33***	0.16***	0.48***	0.53***	**0.05 [0.01, 0.12]**	**0.08 [0.02, 0.18]**
	PA	-0.38***	-0.05	0.52***	0.53***	0.02 [-0.02, 0.07]	0.03 [-0.03, 0.11]
	NA	0.33***	0.09	0.51***	0.53***	0.03 [-0.02, 0.08]	0.05 [-0.03, 0.13]

Note. PA - positive affect, NA - negative affect, *a* - effect of the IV on the mediator, *b* - effect of the mediator on the DV, *c'* - direct effect of the IV on the DV, *c* - total effect of the IV on the DV, *ab* - indirect effect of the IV on the DV through the mediator, CI - confidence interval.

*$p < .05$, **$p < .01$, ***$p < .001$

Table 20

Simple Mediation Analyses for the Relationship Between Intrinsic Religiosity and Anti-Atheist Prejudice

Mediator	Path					
	a	*b*	*c'*	*c*	*ab* [95% CI]	Standardized *ab* [95% CI]
Orthodoxy	0.48***	0.21***	0.04	0.13***	**0.10 [0.04, 0.18]**	**0.29 [0.11, 0.50]**
Second naïveté	0.49***	0.09	0.09*	0.13***	0.04 [0.00, 0.09]	0.13 [0.01, 0.26]
Purity	0.35***	0.12*	0.09*	0.13***	0.04 [0.01, 0.08]	0.13 [0.02, 0.24]
Progressivism	-0.33***	-0.19***	0.07	0.13***	**0.06 [0.02, 0.12]**	**0.19 [0.07, 0.34]**
Religious fundamentalism	0.52***	0.22***	0.02	0.13***	**0.11 [0.06, 0.18]**	**0.33 [0.18, 0.52]**
Perceived threat to trust	0.13*	0.59***	0.06*	0.13***	0.07 [0.02, 0.14]	0.21 [0.05, 0.37]
Origins of morality	0.55***	0.14**	0.03	0.11**	**0.08 [0.02, 0.14]**	**0.26 [0.08, 0.42]**
"God is the source of morality"	0.88***	0.11***	0.02	0.11**	**0.10 [0.04, 0.15]**	**0.31 [0.15, 0.48]**
Political worldview	0.39**	0.10**	0.10*	0.13***	0.04 [0.00, 0.09]	0.12 [0.01, 0.25]

Note. *a* - effect of the IV on the mediator, *b* - effect of the mediator on the DV, *c'* - direct effect of the IV on the DV, *c* - total effect of the IV on the DV, *ab* - indirect effect of the IV on the DV through the mediator, CI - confidence interval.

*$p < .05$, **$p < .01$, ***$p < .001$

Exploring the Link Between Intrinsic Religiosity and Anti-Atheism

Religiosity-related concepts (post-critical beliefs, moral foundations, image of God, religious fundamentalism, and beliefs on origins of morality), perceived threats, elicited emotions, and political worldview were introduced as mediators to study the relationship between intrinsic religiosity and anti-atheist prejudice more comprehensively. Out of 28 mediation models computed, nine turned out to be significant, five of which were full mediations. Second naïveté, purity moral foundation, perceived threat to trust, and political worldview partially mediated the link between intrinsic religiosity and anti-atheism. In other words, intrinsic religiosity is connected to symbolic affirmation of religious ideas, to concerns about sanctity of body and spirit, and to a more conservative viewpoint, but also to a stronger perception of atheists as those who should not be trusted. In turn, these mediators are associated with a more negative attitude towards non-believers. All the effect sizes were positive and medium, with the one for perceived threat to trust being the strongest mediator amongst the partial ones.

At the same time, the link between intrinsic religiosity and anti-atheist prejudice was fully mediated by orthodoxy, progressivism moral foundation, religious fundamentalism, a belief in supernatural origins of morality (measured by the following item: *God is the source of morality*), and an aggregate measure (a mean of four items) of believing in divine origins of morality (labeled Origins of morality in Table 20). This means that higher internalized religiosity is accompanied by a stronger propensity to interpret religious ideas and notions in a literal way, weaker endorsement of progressivist values (care and fairness as opposed to ingroup loyalty, authority, and purity moral foundations), higher fundamentalism, and a stronger belief in morality being given to humanity by God (both single item and a mean score of four items). These, in turn, are linked to a more negative attitude towards non-believers (except progressivism, which is connected to a less negative attitude). The indirect

effect was the strongest for religious fundamentalism, though it was not very different from the indirect effects through the single item measuring a belief in supernatural morality and orthodoxy. The effect sizes were positive and ranged from medium to large.

Discussion

Anti-atheist prejudice remains alarmingly understudied, though it is undoubtedly prevalent around the world (Gervais et al., 2017). The present study was amongst the first attempts to examine it in a European setting and the first analysis of its kind in Poland. Poland served as a very intriguing case for at least two reasons. Firstly, it is one of the most religious countries in the Old Continent, with 93.5% of the citizens declaring belonging to a religious denomination, most often the Roman Catholic Church (Główny Urząd Statystyczny, 2018). More importantly though, a tendency to equate patriotism with being Catholic is deeply ingrained in Polish society, a phenomenon referred to as the myth of "Pole-Catholic". It was therefore justified to hypothesize that non-believers in Poland are in a quite problematic position, and that they might be stigmatized as "the other", just like in the United States, where most of the anti-atheism research has been conducted so far (e.g., Edgell et al., 2006).

The first study's main hypothesis pertained to the composition of the threat-emotion profile of anti-atheist prejudice. I proposed, based on the work of Gervais et al. (2011), that perceiving atheists as threatening trust is linked to experiencing anger, in line with the sociofunctional approach to prejudice (Cottrell & Neuberg, 2005). To test this assumption, I conducted correlation, multiple regression, and simple mediation analyses.

Analysis of correlation yielded mixed findings. Regarding the three types of perceived threat, the strongest correlation was the one between general attitude towards atheists and perceived threat to trust, as predicted. The relationship between attitude towards atheists and threat of disrespect was only slightly weaker, though, which could be attributed to the moral

content of this type of threat as it represents the symbolic aspect of a more general category of threat of contamination to ingroup. As for elicited emotions, the picture was a bit blurry. Anger was the second strongest correlate of attitude towards atheists, right after fear. However, disgust and guilt were also significantly related to anti-atheist prejudice, and all these four coefficients were similar in terms of strength. Such a result was an exact opposite of the expectations derived from the sociofunctional approach as anger is hypothesized to be the primary reaction to perception of threat to trust, while fear is the only emotion that appears as the secondary response. Finally, correlating threat types and elicited emotions in each target group resulted in a relatively stable pattern (see Table 21). There were only two instances in which the strongest emotional correlate did not match the theoretical primary or secondary reaction to the three types of threat (disgust and threat to safety in Muslim condition, disgust and threat to trust in Christian condition).

Table 21

Strongest Emotional Correlates of the Three Threat Types in Each Target Group

Group	Threat to safety	Threat of disrespect	Threat to trust
Christian	Fear	Anger	Disgust
Muslim	Anger/disgust	Anger/disgust	Anger
Atheist	Anger	Disgust	Fear

Multiple regression analysis was performed in a similar fashion as in the original study by Cottrell and Neuberg (2005). Namely, emotions elicited by the target groups (anger, fear, guilt, and disgust) were regressed on the types of threat that the target group could be seen to pose (threat to trust, safety, and moral contamination - here measured by the threat of disrespect). Apart from the proposed connection between perceived threat to trust and anger, another two links were expected: between perceived threat to safety and fear, and between

perceived threat of moral contamination and disgust, both already evidenced by Cottrell and Neuberg. However, those predictions were only partially reflected in the obtained data. Out of 12 multiple regression models computed for each of the emotions, perceived threat to safety emerged as the strongest predictor in most of the cases - irrelevant of which emotion was predicted. Therefore, the results provided further evidence for the perceived threat to safety-fear connection, but not the hypothesized link between perceived threat to trust and anger or perceived threat of moral contamination and disgust.

Apart from analyzing multiple regression models, simple mediation analyses were performed to test the possibility of elicited emotions mediating the relationship between threat perception and attitude towards target groups. These calculations supported the previous results - there was no evidence for the hypothesized threat-emotion profile of anti-atheist prejudice. Perceiving non-believers as threatening trust was not connected to anti-atheism through any of the emotions measured. However, it could be noted that anger elicited by the target group consistently emerged as a partial mediator of the relationship between perceived threat (threat of disrespect in atheist condition, all three types of perceived threat in Muslim/Christian conditions) and general attitude towards target group.

The results come across as somewhat surprising. On one hand, perceived threat to safety turned out to be the main predictor of anger, fear, disgust, and guilt towards target groups. No other type of threat had such an effect. It was also revealed that anger played a central role in mediating the relationship between perceived threat (regardless of its type) and attitude towards target groups, with only a few exceptions across all the models. On the other hand, results of the correlation analyses were more consistent with theoretical predictions. Overall, these findings contradict the notion of specific threat-emotion links postulated by the sociofunctional approach. Failure to replicate the results of the original study and the inability

to find the threat-emotion profile exclusive to anti-atheist prejudice might have occurred due to at least two reasons.

Firstly, it needs to be noted that the sociofunctional approach to prejudice postulates that two distinct types of emotional reactions can emerge in response to ingroup threats: primary and secondary. It is hypothesized that secondarily evoked emotions are a sign of another threat's presence (e.g., threat to values might not only elicit moral disgust and/or anger, but also fear due to worries about group safety). There is a possibility that at least some of the items measuring perceived threat types were contaminated and led to perception of another type of threat apart from the one they were meant to capture. It would explain why perceived threat to safety significantly predicted all four emotions instead of only fear as the primary reaction and anger as the secondary. Moreover, this issue has to do not only with the development of the threat items for the purpose of the study, but also with the results of the factor analysis, which led to aggregating threat items into three subscales (safety, trust, disrespect; see Appendix D and E). Perceived threat to safety scale consists of one item directly measuring this type of threat, but also two items on threat to health, which could conceptually belong to the contamination threat category. Similarly, perceived threat to trust scale includes items on morality, which again can be considered overlapping with the contamination to ingroup category, yet they emerged as a single factor along with trust items. This could potentially result in an inconsistent pattern of predictions.

Secondly, threat types posited by Cottrell and Neuberg are not equally capacious categories. Fear as the primary emotional response is hypothesized to be elicited only by the perception of ingroup's safety being endangered. However, anger can be evoked by a broad range of threat stimuli hidden under the umbrella term of obstacles to ingroup. These obstacles are not limited to threatening trust relations, which the present study was focused on - threats to group possessions, resources or rights belong to this category as well. Perhaps

these subcategories of the general obstacles to ingroup threat type contribute to the hypothesized experience of anger to a different extent, and exposure to only one subcategory (in this case perceiving atheists as a threat to trust) might not be sufficient to evoke a tangible emotional reaction or evokes a secondary rather than primary emotional response. A similar argumentation could be applied to perceived threat of moral contamination as it is merely one side of a broader category of contamination to ingroup and does not take its physical aspect into account (threatening ingroup members' health). Additionally, disgust in response to moral stimuli is more akin to moral anger than to disgust elicited by stimuli that are physically revolting (Oaten et al., 2018). At the same time, moral anger and moral disgust, though related, are elicited by distinct aspects of violations (Russell & Giner-Sorolla, 2011). Therefore, it is possible that moral contamination items were more successful in evoking anger rather than disgust as they included no threat of harm to body. It should also be noted that anger is the only emotion that can appear in response to every type of threat: either as a primary reaction (to obstacles to ingroup category) or a secondary one (to all remaining subcategories of threats). Such ubiquitousness, combined with arguments provided above, might have contributed to anger overshadowing other emotions in the regression and mediation models.

In the original study, Cottrell and Neuberg assessed 10 types of threat - six subcategories of perceived obstacles to ingroup, two subcategories of contamination to ingroup, and two general categories (physical safety and not engaging in reciprocal behavior due to inability), each with two items. Next, the subcategories were collapsed into respective classes of threat, and only then regression analyses followed. Theoretical threat categories were thus fully represented, which was not the case in the present study. I measured three types of threat, and only perceived threat to safety was fully captured (as it has no subcategories). This could have also contributed to its overrepresentation in the final results,

contrary to expectations. Therefore, in future research a more comprehensive and sensitive measure of threat perception should be administered. Caution needs to be exercised in order to develop items that do not overlap conceptually and measure all categories and subcategories of perceived threat.

Apart from testing the threat-emotion profile of anti-atheist prejudice, the study was aimed at examining the intergroup attitudes of religious and non-religious individuals in Poland. I hypothesized that believers will display a more negative attitude towards non-believers in comparison to their ingroup, and at the same time they will be less negative towards followers of another religion (here: Muslims) as compared to atheists. As could be expected, both religious and non-religious participants exhibited ingroup bias. In particular, religious respondents were less negative towards their ingroup members as compared to atheists. Interestingly, their evaluations of ingroup and non-believing outgroup did not differ significantly in any other aspect, be it perceived threats or elicited emotions. Non-religious participants were not as reserved in their appraisals, though. Not only was their attitude towards the believing outgroup more negative, but they also perceived its members as more threatening to their safety and trust as well as to their ingroup values (as compared to how non-religious participants saw their ingroup). Additionally, anger, disgust, and guilt elicited by the outgroup were significantly stronger than what the non-religious reported with regard to their ingroup. These results confirm the second hypothesis, though it has to be noted that means for both ingroup and outgroup evaluations oscillated around the midpoint of the response scale. As such, they do not indicate a particularly strong prejudice, but rather a less positive attitude.

Though so far only differences between religious and non-religious participants have been discussed, there is a peculiar similarity that binds them. Namely, in both of these groups Muslims were evaluated most negatively, a finding which contradicts the third hypothesis.

Based on the religious prosociality hypothesis, it was expected that religious respondents would exhibit a less negative attitude towards Muslims in comparison to non-believers. That is due to the fact that followers of Islam, though they do not belong to the same denominational ingroup, still believe in God and therefore can be trusted, even if to a lesser extent. A possible explanation for this result lies in the shared perception of Muslims in Poland. It goes without saying that Poles are highly prejudiced against them. 59% of Polish citizens perceive Muslims as so different from Poles that they should not be allowed to hold some of the positions in the society, while 52% of respondents see followers of Islam as more primitive than followers of other religions (Skrodzka & Stefaniak, 2017). When asked for four associations with the word "Islam", 20% of all the answers fell into the category of "terrorism" (Stefaniak, 2015). These results are even more disturbing when one realizes what is the percentage of Poles who do not know any Muslims in person - it is 88%. This grim picture is fueled by the public discourse, for example in the newspapers, where Muslims are often portrayed as invaders or economical and sexual predators (Bertram, Puchejda, & Wigura, 2017). It is perhaps due to this shared perception that the fact that Muslims are also a religious group did not mitigate believers' negative attitude towards them. At the same time, non-religious respondents were not as harsh in their evaluations. As was already mentioned, they did perceive Muslims as the biggest threat to safety, and elicited fear was most intense towards this group as well. Interestingly though, there was no difference between the assessment of Christians and followers of Islam in any other scale. This lack of significant differences could point towards non-believers' generalized attitude towards believers, regardless of their denomination. Having these findings in mind, it would be interesting to see what attitude Christian and atheist participants would exhibit if a religious group other than Muslims, who elicit such strong reactions, is introduced into the study.

The last hypothesis of the present study pertained to the positive association between religiosity and anti-atheist prejudice. This general assumption has been confirmed as both intrinsic and extrinsic religious orientation did correlate with general attitude towards atheists, with strength of this relationship being, respectively, moderate and small. Subsequent correlational analyses, partial and controlling for the effect of intrinsic religious orientation, uncovered further significant links. Firstly, general attitude towards atheists was related to orthodoxy (positively) and relativism (negatively), both of which are cognitive styles of coping with religious ideas. It appears that literal understanding of faith and religious texts coincides with a more negative attitude towards non-believers, but the link is reverse for those who interpret religion symbolically, yet they reject it. This distinction between literal and symbolic processing can be translated into rigidity and flexibility of religious beliefs (Shen et al., 2013). In other words, it would seem that limited openness and acceptance of different points of view might play an important role in prejudice against atheists. A similar finding was reported by Grove, Hall, Rubenstein, and Terrell (2019) as the propensity for literal interpretation of the Bible was found to be a significant predictor of anti-atheism.

Next, endorsing harm, fairness, and progressivism fostered a more positive attitude towards non-believers, while a stronger approval of purity was related to higher anti-atheism. An explanation can be derived from the definitions of these moral foundations. Harm and fairness form a separate cluster of moral foundations, referred to as individualizing (as opposed to binding ones). Together, they pertain to values such as justice or equality and encourage care, kindness, and compassion for others. Studies have shown (e.g., Graham, Haidt, & Nosek, 2009) that harm and fairness are the two foundations upon which liberals mainly rely in their moral judgments. As such, endorsement of these foundations is likely to contribute towards higher tolerance of dissimilar others. On the other hand, moral foundation

of purity focuses on sacredness of body and soul. It is tightly connected to religiosity as it promotes refraining from immoral behavior to avoid defilement. Moreover, dissimilarities with regard to purity have been shown to contribute to social distance in a social media network setting (Dehghani et al., 2016). As non-believers are likely to be perceived as value violators by religious individuals, purity might be sustaining anti-atheist prejudice.

Furthermore, having a positive image of God was linked to higher prejudice against non-believers. Though this finding might sound counterintuitive, it is in fact in line with the literature on the subject. According to a study by Shariff and Norenzayan (2011), it is the wrathful, not the merciful God that serves as a true deterrent and drives humanity away from immoral deeds as "mean Gods make good people". It is possible that not believing (or believing to a lesser extent) in punitive nature of God makes individuals more likely to express negative attitude more as means to punish others as punishment cannot be outsourced to God (Laurin, Shariff, Henrich, & Kay, 2012).

Religious fundamentalism was the last identified correlate. Its positive relationship with general attitude towards atheists is in line with the previous findings, according to which religious fundamentalism promotes prejudice (Altemeyer & Hunsberger, 1992), in particular against groups dissimilar in terms of beliefs (Brandt & Van Tongeren, 2017), as well as mediates the link between religiosity and prejudice (Johnson et al., 2011).

Having confirmed that intrinsic religiosity is a significant correlate of anti-atheist prejudice, a simple mediation analysis was conducted to look for possible mediators in an exploratory manner. In fact, nine of them were found. Second naïveté, purity, and perceived threat to trust turned out to be partial mediators, while orthodoxy, progressivism, belief in divine origins of morality (both the four-item scale and the single item), religious fundamentalism, and political worldview fully mediated the relationship between intrinsic religiosity and anti-atheism. A few conclusions could be drawn from these findings. Firstly,

they provide further evidence for the role of perceiving non-believers as untrustworthy in anti-atheist prejudice and show how tightly this perception is connected to religious orientation. Moreover, they highlight how intricate and nuanced the link between intrinsic religious orientation and anti-atheism really is. It is not only reluctance to trust non-believers - endorsed moral foundations, cognitive style of processing religion itself, fundamentalist approach to religion as well as political worldview also have their place in the equation. The most interesting finding is perhaps the full mediation effect of beliefs on the divine origins of morality. The conviction that God is the sole source of morality and there is no other way of acquiring moral knowledge or intuition denies non-believers the ability to be moral beings. However, further research is necessary as the measure used to assess these beliefs needs to be revised and extended.

In terms of limitations of the present study, three main issues have to be considered. Firstly, all of the mediational analyses were performed on cross-sectional data, so no causal inferences can be made. Moreover, though the sample size exceeded the calculated minimum, the subsample of religious individuals was small in comparison to the non-religious one. Effectively, some of the conducted analyses were underpowered. Additionally, these subsamples were comparable only to some extent (e.g., with regard to age, but not gender or political worldview). In light of that, the interpretation of the findings has to be cautious.

Though the results did not provide evidence for the threat-emotion profile of anti-atheist prejudice, they are still promising as they show possible research directions. This pertains especially to the concept of beliefs on the divine origins of morality. The relationship between intrinsic religiosity and anti-atheism is far from simple, and its unraveling has only begun as many questions are still unaddressed.

"The harvest is plentiful, but the laborers are few"

(*New Revised Standard Version*, 1989, Matthew 9:37)

Study 2

Results of the first study made clear the need for a more thorough exploration of the links between beliefs on (divine) origins of morality and anti-atheist prejudice. To date, there is no validated questionnaire that could be used to assess the degree to which one holds different types of such beliefs. For this reason, I decided to develop a measure of these convictions, and this chapter of the dissertation describes the process of its creation.

Beliefs on the origins of morality belong to a broad category of beliefs about morality itself, which are generally referred to as meta-ethical beliefs. These convictions are a subject of research in many fields of science - experimental philosophy, moral psychology or anthropology, to name a few. Therefore, the first step in developing a scale was a thorough review of the literature on the subject and looking for existing ways to measure meta-ethical beliefs.

As it turned out, first attempts to measure meta-ethical beliefs have already been made (20-item Morality Founded on Divine Authority scale (MFDA) - Piazza & Landy, 2013; a shortened version of MFDA - Simpson, Piazza, & Rios, 2016). These instruments are a reliable and valid way of assessing beliefs on divine origins of morality and have been successfully administered in research. Nevertheless, their usage is limited as they do not capture any other beliefs than those that stem from a religious standpoint. Taking that into account, I aimed at going a step further and creating a measure of both religious and secular meta-ethical beliefs on origins of morality.

Broadly speaking, meta-ethics deal with issues pertaining to moral language, moral psychology, and moral ontology (Fisher, 2014). Though I did not attempt to measure any other meta-ethical beliefs than those concerning origins of morality, my intention was to assess them as comprehensively as possible. For this reason, while developing items, I tried to cover topics such as: origins of moral ability and knowledge, what makes an act (im)moral,

objectivity vs. subjectivity of moral truths or relationship between morality and nature. As a result, 20 items, falling into two subscales: divine command and evolutionary origins, were developed. Given that, the minimal sample size for performing the factor analysis was equal to 100, according to the 5:1 observation-variable ratio (Hair et al., 2013). The first version of the instrument, titled Meta-Ethical Beliefs Questionnaire, is presented in Table 22.

The original version of the Meta-Ethical Beliefs Questionnaire was pretested on a group of 173 Polish participants (60 males, 113 females) at the turn of May and June 2018. The sample was recruited through posts on social media. Respondents' age ranged from 15 to 72, with a mean of 31.73 and a standard deviation of 10.62. Majority of participants had a university degree (61.8%), while 32.4% attained secondary education. Respondents were mostly non-believers (63.6% vs. 28.9% of believers), not religious (78.6%), and had a left-wing political worldview (49.7% vs. 33.5% of "I do not know" answers).

Factor Analysis

Though items were assigned a priori to categories, the first step after collecting the data was to conduct an exploratory factor analysis as it is common practice while developing new instruments (Flora & Flake, 2017). Due to non-normality of the data, principal axis factoring was used as an extraction method (Costello & Osborne, 2005). Initially, no restriction on the number of factors was imposed. Instead, I used the Kaiser-Guttman criterion for the first extraction, with a direct oblimin rotation as the factors were likely to be correlated. Kaiser-Meyer-Olkin measure of sampling adequacy was equal to .84, which is satisfactory as it shows a large portion of the variance was shared. Bartlett's sphericity test was significant, $\chi^2(190) = 1401.71$, $p < .001$, which indicated that items are intercorrelated. In other words, it was valid to perform a factor analysis on the collected data. The first extraction resulted in six factors. Four items were removed due to the absolute value of their factor loadings being lower than .40. These were the following: *Humans are equipped with a*

moral instinct that allows them to make moral decisions on their own, *To act morally, it is not necessary to follow a moral authority*, *It is simply reasonable to treat others as one wants to be treated*, and *Only basic moral intuitions emerged from evolution; how people deal with moral dilemmas depends on culture*. In the subsequent analysis, the number of factors dropped to five, and no items had to be removed. Still, I manually set the number of factors to be extracted to four, because the fifth factor consisted of two items only, one of which had a high loading on another factor. Two more items had to be removed due to unsatisfactory loadings (*If there is no God, then everything is allowed* and *Empathy is a part of human nature; it spurs benevolence*). After conducting another extraction, no item had a loading of less than .40, but the fourth factor was composed of two problematic items, namely *Non-believers cannot behave in a moral way* and *One can behave morally without belief in God*. A decision was made to remove them to simplify the solution, and that concluded the factor analysis procedure. Table 23 shows the final structure of the measure.

Though items were designed with two subscales in mind, three factors were retained in the final solution. The first one captures beliefs on divine origins of morality, the second - moral relativism, and the third - beliefs on evolutionary origins of morality. The scales were named accordingly to their content and consist of seven, two, and three items, respectively. Although moral relativism scale does not assess any type of beliefs on origins of morality, it was retained as it still measures meta-ethical commitments and could prove useful. Table 24 presents intercorrelations between the final scales. As expected, they are indeed correlated, which shows that the choice of direct oblimin rotation was correct.

Table 22

First Version of the Meta-Ethical Beliefs Questionnaire

Divine command	Evolutionary origins
Non-believers cannot behave in a moral way.	One can behave morally without belief in God.
It is thanks to the Divine Revelation that humans are able to discern between good and evil.	Foundations of morality, such as: empathy, fairness or justice, emerged as a result of evolution.
Morality is of supernatural nature, because it has been revealed to humankind.	Morality is at least partially a biocultural phenomenon - it emerged in the process of evolution as a mechanism of adaptation to group living.
The inclination to do evil lies in human nature, which is why people need moral principles given by God.	Humans are equipped with a moral instinct that allows them to make moral decisions on their own.
People are sinful, so it is necessary to rely on God when making moral decisions.	To act morally, it is not necessary to follow a moral authority.
An act is a moral one only if it is consistent with the revealed will of God.	Moral standards should be seen as being individualistic; what one person considers to be moral may be judged to be immoral by another person.
The morality given by God is universal (applies to every human being) and unchangeable.	One cannot answer the question of what is universally moral, because the moral evaluation of a given behavior is up to the individual.
Nature is blind to moral principles, therefore morality could not have emerged from nature alone.	It is simply reasonable to treat others as one wants to be treated.
If there is no God, then everything is allowed.	Empathy is a part of human nature; it spurs benevolence.
God has given humanity the universally applicable moral tools to solve moral dilemmas.	Only basic moral intuitions emerged from evolution; how people deal with moral dilemmas depends on culture.

Table 23

Final Factor Structure of the Meta-Ethical Beliefs Questionnaire

Item	F1	F2	F3	h^2	*M*	*SD*
It is thanks to the Divine Revelation that humans are able to discern between good and evil.	.92			.79	1.78	1.21
People are sinful, so it is necessary to rely on God when making moral decisions.	.91			.75	1.59	1.07
Morality is of supernatural nature, because it has been revealed to humankind.	.81			.68	1.60	0.99
An act is a moral one only if it is consistent with the revealed will of God.	.80			.63	1.41	0.84
God has given humanity the universally applicable moral tools to solve moral dilemmas.	.76			.68	1.92	1.25
The morality given by God is universal (applies to every human being) and unchangeable.	.73			.58	1.91	1.25
The inclination to do evil lies in human nature, which is why people need moral principles given by God.	.69			.52	1.73	1.11
One cannot answer the question of what is universally moral, because the moral evaluation of a given behavior is up to the individual.		.75		.55	3.18	1.33
Moral standards should be seen as being individualistic; what one person considers to be moral may be judged to be immoral by another person.		.64		.43	3.67	1.17
Foundations of morality, such as: empathy, fairness or justice, emerged as a result of evolution.			.77	.57	3.71	1.15
Morality is at least partially a biocultural phenomenon - it emerged in the process of evolution as a mechanism of adaptation to group living.			.62	.44	4.09	0.94
Nature is blind to moral principles, therefore morality could not have emerged from nature alone.			-.59	.36	2.44	1.28
% of variance explained	42.47	7.95	7.61			

Note. F1 - Factor 1, F2 - Factor 2, F3 - Factor 3, h^2 - communality.

Table 24

Intercorrelations Between Extracted Factors

Factor	Divine origins	Moral relativism	Evolutionary origins
Divine origins	1.00		
Moral relativism	-.22	1.00	
Evolutionary origins	-.50	.12	1.00

Reliability and Validity of the Scale

Next, internal consistency of the measure was assessed. Table 25 presents Cronbach's α along with basic descriptive statistics for the subscales (mean, standard deviation, skewness, and kurtosis).

Table 25

Internal Consistency and Descriptive Statistics of the Subscales

Scale	Cronbach's α	*M* (*SD*)	Skewness	Kurtosis
Divine origins	.93	1.71 (0.92)	1.39	1.20
Moral relativism	.65	3.42 (1.08)	-0.32	-0.79
Evolutionary origins	.69	3.79 (0.89)	-0.75	0.58

Divine origins is the longest scale of the instrument and is characterized by the highest reliability. Moral relativism and evolutionary origins are much shorter in comparison, which is reflected in relatively low internal consistency as Cronbach's α is known to be sensitive to scale length. Skewness and kurtosis point towards normality of subscale distributions.

In terms of validity, one of its types was examined: known-groups. First, faith and religiosity indices were recoded from a seven- to a two-point scale, so that heterogeneity between believing/religious and non-believing/non-religious participants could be assessed. These group comparisons were carried out in order to verify whether the MBQ can detect

differences in the degree of endorsement of meta-ethical beliefs that were expected to be found. Due to non-normality of subscale distributions and large discrepancies in subsample size, Mann-Whitney *U* test was performed. Tables 26 and 27 show the results of the analysis for believers/non-believers and religious/non-religious respondents, respectively.

Table 26

Differences Between Non-Believers and Believers in Terms of Endorsement of Meta-Ethical Beliefs Measured by MBQ

Scale	Non-believers (n = 110)			Believers (n = 50)			U	p
	M	*SD*	*Me*	*M*	*SD*	*Me*		
Divine origins	1.21	0.37	1.00	2.78	0.91	2.57	245.50	< .001
Moral relativism	3.54	1.07	3.50	3.15	1.06	3.00	2165.50	.030
Evolutionary origins	3.93	0.83	4.00	3.43	0.94	3.33	1867.00	.001

As predicted, compared groups differed significantly in terms of mean level of endorsement of three types of meta-ethical beliefs assessed by MBQ. On one hand, participants who believe in God attribute morality to a divine origin to a greater degree than respondents who do not believe in any deity. On the other hand, non-believers exhibit higher level of both approval of moral relativism and belief in evolutionary origins of morality.

Table 27

Differences Between Religious and Non-Religious Participants in Terms of Endorsement of Meta-Ethical Beliefs Measured by MBQ

Scale	Non-religious (n = 136)			Religious (n = 27)			U	p
	M	*SD*	*Me*	*M*	*SD*	*Me*		
Divine origins	1.38	0.57	1.00	3.12	0.97	3.00	225.50	< .001
Moral relativism	3.48	1.08	3.50	3.06	1.05	3.00	1414.50	.057

Scale	Non-religious (n = 136)			Religious (n = 27)			U	p
	M	*SD*	*Me*	*M*	*SD*	*Me*		
Evolutionary origins	3.89	0.87	4.00	3.28	0.93	3.33	1121.50	.001

An analogous pattern of results emerged for the comparison of religious and non-religious participants. The only discrepancy was the lack of significant difference in average level of moral relativism, though a tendency towards significance was observed.

The comparisons point towards satisfactory known-groups validity as they clearly indicate MBQ's ability to differentiate between groups according to predictions. To complement these results, correlations between MBQ subscales and attitude towards (a)theists were calculated. As the distributions were mostly non-normal, Spearman's *rho* coefficients were computed. They are presented in Table 28.

Table 28

Correlations Between Meta-Ethical Beliefs Measured by MBQ and Attitude Towards (A)Theists

Group	Scale	Theist attitude	Atheist attitude
Believers	Divine origins	.63***	.01
	Moral relativism	-.18	.15
	Evolutionary origins	-.25	.10
Non-believers	Divine origins	.38***	-.02
	Moral relativism	-.02	-.06
	Evolutionary origins	-.09	.04
Religious	Divine origins	.47*	-.47*
	Moral relativism	-.25	.28

Group	Scale	Theist attitude	Atheist attitude
	Evolutionary origins	-.09	.43*
Non-religious	Divine origins	.57***	.06
	Moral relativism	-.09	-.04
	Evolutionary origins	-.15	-.04

*$p < .05$, ***$p < .001$

In each of the four subgroups (believer, non-believer, religious, non-religious), the stronger the belief in divine origins of morality was, the more positive the attitude towards theists. While it is consistent with the predictions regarding participants who believe in God and are religious, it is somewhat puzzling when it comes to respondents who were assigned to the non-belief group. One possibility is that the grouping variable was too inclusive (i.e., the seven-point response scale was recoded into a two-point scale, so both convinced atheists and doubting agnostics could be in the same non-believing category). Moreover, since the average level of conviction that morality is of divine origin was significantly lower for non-believers and non-religious participants (as shown in Table 26 and 27), it is conceivable that outliers contributed to this finding.

Apart from that, the main prediction was confirmed, namely a negative correlation between divine origins subscale and attitude towards atheists was found in the religious subsample. Additionally, the stronger the conviction that morality has evolutionary origins was, the more positive the religious participants were towards non-believers.

Discussion

The Meta-Ethical Beliefs Questionnaire (MBQ), developed for the purpose of the present dissertation, is the first scale that can be used to assess the degree to which individuals hold beliefs on both divine and evolutionary origins of morality. As such, it offers a way of acquiring a better understanding of the processes behind moral reasoning and

religion-based prejudice, among others, and thus opens new research avenues. Though in its current version MBQ captures only three types of beliefs, it is an important and necessary first step to develop a comprehensive but concise method of measuring a wide range of meta-ethical commitments (e.g., beliefs on objective vs. subjective nature of moral values or inherent vs. acquired character of moral intuition/knowledge).

Despite the fact that it is the very first version of the questionnaire, it is already promising as the pretest study on a Polish sample showed satisfactory internal consistency as well as known-groups validity of the measure. The next steps will be to refine and extend the instrument (e.g., in terms of the length of the scales and further validation studies), and to prepare an English version of the scale. Not only will it allow for the extension of my own research, but also enable access for a wider scientific audience.

MBQ, even in its initial form, can be considered a valuable tool and contribution to the field of moral psychology, psychology of religion, and experimental philosophy. Despite its imperfections, it is a vital attempt to approach meta-ethical beliefs multidimensionally and therefore fills the research gap in that regard as no such assessment was available until now.

Study 3

The analysis of the first study's results revealed many shortcomings of its design, but at the same time it pointed towards new and promising research directions. Most importantly, it showcased the mediational effects of atheist distrust and beliefs in the divine origins of morality on the relationship between intrinsic religious orientation and attitude towards atheists. In order to replicate and extend upon the findings of the first study, I aimed at refining the methods of assessment administered therein. However, there was no scale which could be used to examine one's beliefs on morality's origins (apart from the divine ones), and using the same items as in the first study was out of question. Thus, Meta-Ethical Beliefs Questionnaire was created to address that instrument shortage.

This process informed the final design of the third and last study of the present dissertation. Broadly speaking, its purpose was twofold. The first objective was to replicate the results of the first study. As was already mentioned, many flaws have been discovered in the course of analysis, most of which concerned measurement issues. For that reason, previously utilized questionnaires were carefully inspected. Problematic measures were either replaced or simplified, and a proper questionnaire of meta-ethical beliefs was introduced. The most drastic change was made with regard to the 27-item threat scale - it was completely removed due to poor performance, and simple feeling thermometers were administered in its place. This decision was tantamount to giving up on testing the hypothesis of the threat-emotion profile of anti-atheist prejudice. Instead, I chose to focus on the main finding of the first study, namely that atheist distrust and beliefs that morality is of divine origin were found to be significant mediators of the relationship between intrinsic religiosity and attitude towards atheists. Apart from that, my intention was also to test H_2 (Religious individuals are more negative towards non-religious ones in comparison to followers of their own religion) and H_4 (Religiosity is positively related to anti-atheist prejudice) again to verify the

robustness of results as the measure of anti-atheism changed substantially compared to the original study. Taking into account that Study 1 showed anti-theist prejudice exhibited by non-religious participants, I hypothesized mutual religion-based prejudice to replicate these findings.

Secondly, I aimed at extending the findings of the first study, mainly by building upon the results of the aforementioned mediation analysis. Combining its conclusions with theoretical considerations, I posited that distrusting atheists and believing in divine origins of morality are not competing mediators, but rather that the latter precedes the former. In other words, the main hypothesis of the last study was that attributing morality to God, a belief inherent to intrinsic religiosity, is an antecedent of perceiving non-believers as untrustworthy as they are seen as unable, by virtue of their non-belief and lack of connection to God, to behave morally. Therefore, I argued that the core of anti-atheist prejudice lies in perception of morality, not in perception of atheists per se.

Testing the main hypothesis required taking a step back first, though. The four items assessing the degree of belief in divine origins of morality in the first study were administered experimentally. For that reason, I decided to develop a proper instrument before verifying the core assumption. This led to the creation of Meta-Ethical Beliefs Questionnaire, which captures beliefs on both divine and evolutionary roots of morality. This scale was not the only addition to the final design of the third study. Three more constructs of interest were measured: moral rigidity, evolution literacy, and moral motivation. No hypotheses were posited with regard to them - similarly as in Study 1 I intended to investigate the links between religiosity, beliefs on evolution, and attitude towards (a)theists in an exploratory manner.

Hypotheses of Study 3 could be then formulated as follows:

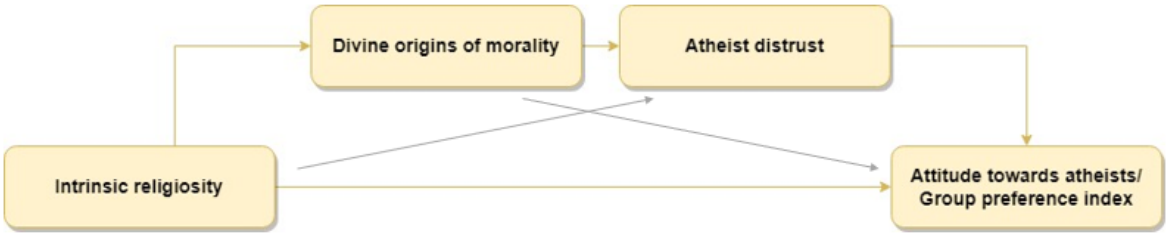
H_1: Religious and non-religious individuals exhibit mutual prejudice.

H_2: Religiosity is positively related to anti-atheist prejudice.

H_3: Relationship between intrinsic religiosity and anti-atheism is mediated by beliefs in divine origins of morality and distrust, operating in a sequence (see Figure 4).

Figure 4

A Conceptual Diagram of the Serial Mediation Model of the Relationship Between Intrinsic Religious Orientation and Attitude Towards Atheists/Group Preference Index



I expected medium effect sizes for group comparisons (d = 0.50) and correlational analyses (r = .30). Sample size for achieving power of .80 was equal to 102 and 67, respectively, and was calculated using G*Power software (Faul et al., 2009). With regard to mediation analyses, I intended to employ the bootstrapping approach, which provides satisfactory power even for small samples (Efron & Tibshirani, 1993; Jose, 2013). Given that, 102 was considered to be the minimal sample size.

Procedure and Questionnaires

The study was conducted online in June and July 2018, using Enterprise Feedback Suite questionnaire management software (Spring 2018 version), available under www.unipark.de. Links to the survey were distributed through e-mails to Christian (mainly Catholic) and atheist associations as well as through Facebook groups. In total, 182 participants took part in the study (130 women, 52 men), with a mean age of 30.37 years (SD = 10.15, minimum = 16, maximum = 69). Majority of respondents (62%) held a university degree. 57.1% of the sample declared belief in God, with 61.5% identifying as Christians.

The introductory part of the study consisted of three items concerning religiosity (*How religious are you?* with a response scale of 1 to 7*, Do you believe in God?* to which participants could answer with *yes* or *no,* and *What is your religious affiliation?* with six answer options), which were followed by (in the order of appearance):

1) Religious Orientation Scales (Allport & Ross, 1967; Batson & Schoenrade, 1991; Polish adaptation: Socha, 1992) - a 32-item combination of two questionnaires measuring three types of religious orientations: intrinsic (e.g., *My religious beliefs are what really lie behind my whole approach to life*), extrinsic (e.g., *I pray chiefly because I have been taught to pray*), and quest (e.g., *For me, doubting is an important part of what it means to be religious*). Statements are evaluated on a scale from 1 (*disagree*) to 5 (*agree*). Reliability for the intrinsic, extrinsic, and quest orientation scales is equal to .98, .92, and .95, respectively.
2) Post-Critical Belief Scale (Duriez, Fontaine, & Hutsebaut, 2000; Polish adaptation: Bartczuk, Zarzycka, & Wiechetek, 2013) - a 33-item measure of four belief attitudes: orthodoxy (literal belief, e.g., *Even though this goes against modern rationality, I believe Mary truly was a virgin when she gave birth to Jesus*), second naïveté (symbolic belief, e.g., *The Bible is a guide, full of signs in the search for God, and not a historical account*), external critique (literal disbelief, e.g., *The world of Bible stories is so far removed from us, that it has little relevance*), and relativism (symbolic disbelief, e.g., *Official Church doctrine and other statements about the absolute will always remain relative because they are pronounced by human beings at a certain period of time*). Response scale ranges from 1 (*strongly disagree*) to 7 (*strongly agree*). Cronbach's α for each of the subscales exceeds .90 (orthodoxy - .91, second naïveté - .95, external critique - .96, relativism - .91).
3) Concept of the Divine - the original 14-item version of the Views of God scale (Shariff & Norenzayan, 2011). Participants are asked to indicate how relevant the presented adjectives (e.g., *loving, vengeful, fearsome*) are to their understanding of God (either one's own or, if

one is an atheist, the understanding of God in one's culture). Participants can choose their answer from a scale of 1 (*not at all relevant*) to 7 (*extremely relevant*). The calculated subscales (benevolent and malevolent image of God) are highly reliable (coefficients equal to, respectively, .98 and .93).

4) Meta-Ethical Beliefs Questionnaire - a 12-item scale measuring three dimensions of meta-ethical beliefs: divine origins of morality, evolutionary origins of morality, and moral relativism. Sample items for each scale are, respectively: *Morality is of supernatural nature, because it has been revealed to humankind*, *Foundations of morality, such as: empathy, fairness or justice, emerged as a result of evolution*, and *Moral standards should be seen as being individualistic; what one person considers to be moral may be judged to be immoral by another person*. Participants can indicate their answers using a Likert response scale, ranging from 1 (*definitely not*) to 5 (*definitely yes*). Out of three subscales, divine origins is the most reliable one (.96) and moral relativism - the least reliable (.73), with evolutionary origins placing between the two (.83).
5) moral rigidity - two items assessing the degree to which one strictly adheres to moral rules (*One should follow clear moral principles and not depart from them* and *Deviation from moral principles is allowed if the situation (emergency situations) so requires)*. Both statements come from Study 2, for the purpose of which they were developed. Mean of these two items serves as an index of moral rigidity, but its reliability is not satisfactory (Cronbach's α of .51), so it has to be used with caution. The available response scale ranges from 1 (*definitely not*) to 5 (*definitely yes*).
6) evolution literacy - to complement the measurement of the meta-ethical belief in evolutionary origins of morality, the following three items were developed and administered to assess how participants understand evolution (*Evolution is just a theory*, *Evolution is a proven fact as much as gravity is*, and *God shaped the process of evolution at several points in history*).

Responses can be given on a scale from 1 (*definitely not*) to 5 (*definitely yes*). These items were treated separately in the analyses.

7) distrust towards atheists - measured by seven items (see Appendix J): four phrased positively (e.g., *Atheists are trustworthy*) and three negatively (e.g., *Atheists cannot be counted on*). Six of these statements were taken from the perceived threat to trust scale used in Study 1, and the seventh one was added (*Atheists are dishonest)*. Mean of these items serves as an indicator of atheist distrust. Participants can answer using a Likert response scale (ranging from *definitely not* to *definitely yes*). Reliability expressed by Cronbach's α amounts to .86.
8) feeling thermometers - six items measuring the general attitude towards specific groups (three of main interest, namely: atheists, Christians, Muslims, and three buffer groups: teachers, doctors, and nurses). The response scale ranges from 1 (*very negative attitude*) to 5 (*very positive attitude*). Based on these indicators, indices of Christian anti-atheism (attitude towards Christians - attitude towards atheists) and atheist anti-Christian prejudice (attitude towards atheists - attitude towards Christians) were calculated.
9) moral motivation - measured by three items developed for the purpose of the dissertation and concerning the reason behind one's moral acts. The statements are as follows: *When I behave morally, I do so to obey God's will*, *When I act morally, I do so because I want to live up to my own standards*, and *I resist the temptation to act immorally, because I fear Divine punishment*. To answer, participants can use a Likert response scale (1 - *definitely not*, 5 - *definitely yes*). These items were treated separately in the analyses, as was the case with evolution literacy.
10) demographics - lastly, participants were asked about their gender, age, education, occupation as well as political worldview (measured on a seven-point scale, where 1 corresponded to a left-wing worldview and 7 to a right-wing one) and could leave a comment.

Analysis of Group Differences

First, I analyzed the differences between believing and non-believing participants in terms of intergroup attitudes (which was aimed at identifying religion-based prejudice and testing the first hypothesis), religiosity-related concepts (religious orientation, post-critical beliefs, image of God, meta-ethical beliefs, moral rigidity, and moral motivation) as well as evolution literacy and atheist distrust.

Intergroup Attitudes

To begin with, a simple Mann-Whitney *U* test was conducted to see whether believers and non-believers in Poland exhibit mutual prejudice. The choice of the procedure was motivated by the non-normality of the data. The results are shown in Table 29.

Table 29

Differences in Intergroup Attitudes Between Believers and Non-Believers

Attitude	Believers (n = 104)			Non-believers (n = 78)			U	p
	M	*SD*	*Me*	*M*	*SD*	*Me*		
Atheists	3.37	0.76	3.00	4.33	0.60	4.00	1480.50	< .001
Christians	4.29	0.71	4.00	2.77	0.99	2.50	1060.00	< .001
Muslims	2.98	0.91	3.00	2.81	1.15	3.00	3759.00	.379
Group preference	0.92	1.07	1.00	1.56	1.19	2.00	2889.00	.001

Note. Attitude score range is from 1 (*very negative*) to 5 (*very positive*). Group preference refers to the attitude difference score (attitude towards Christians - attitude towards atheists for believers, attitude towards atheists - attitude towards Christians for non-believers).

The analysis revealed that there are significant differences in terms of mean attitude towards atheists and Christians, but not when it comes to Muslims. Participants who do not believe in God were more positive towards their ingroup, and the same could be observed for believers. However, what is important to note here is that the outgroup was seen neutrally

rather than negatively as the means oscillate around 3 which happens to be the middle of the response scale (*no opinion*). Therefore, an additional index of group preference (attitude towards ingroup minus attitude towards outgroup) was calculated to compare the level of intergroup bias. As it turned out, non-believers favored their ingroup to a significantly greater degree than believers did. The average difference between attitude towards atheists and attitude towards Christians exceeds 1.5 points, which is notable, given the range of the response scale. Overall, such a result suggests that anti-Christian prejudice is in fact stronger than anti-atheism.

In the next step of the analysis, a paired samples Wilcoxon signed-rank test was conducted for believers and non-believers separately to check for within-group differences in intergroup attitudes. Believers were more positive towards their ingroup in comparison to atheists (Z = -6.57, $p < .001$) and Muslims (Z = -7.20, $p < .001$). Attitude towards Muslims was also significantly less positive than attitude towards atheists (Z = -4.53, $p < .001$), and it renders Muslims the least liked group. This is however only the case for participants believing in God. In the non-believer group, atheists were seen significantly more positively than both Christians (Z = -6.76, $p < .001$) and Muslims (Z = -6.58, $p < .001$), but there was no statistically significant difference in attitude towards the two religious groups.

Supplemental Analyses of Group Differences

Apart from analyzing group differences in intergroup attitudes, I conducted an additional comparison of believers and non-believers in terms of other variables measured in the study, namely religiosity-related concepts, evolution literacy, and atheist distrust. Table 30 presents its results with regard to scales, while Table 31 shows differences in answers to single items. In both cases, a Mann-Whitney U test was performed due to data non-normality.

Table 30

Intergroup Differences in Religiosity-Related Concepts and Atheist Distrust

Variable	Believers (n = 104)			Non-believers (n = 78)			U	p
	M	*SD*	*Me*	*M*	*SD*	*Me*		
Extrinsic religiosity	2.22	0.57	2.18	0.47	0.81	0.00	633.00	< .001
Intrinsic religiosity	4.04	0.63	4.11	0.41	0.72	0.00	62.50	< .001
Quest religiosity	2.94	0.59	3.00	0.69	1.06	0.00	550.00	< .001
Orthodoxy	4.13	0.94	4.13	0.80	0.94	0.00	105.50	< .001
Second naïveté	5.29	0.97	5.43	0.95	1.29	0.00	93.00	< .001
Relativism	3.32	1.00	3.19	2.26	2.52	0.44	3096.00	.006
External critique	1.72	0.77	1.50	2.63	2.86	0.44	3818.50	.497
Benevolent image of God	6.59	0.65	6.86	3.22	1.76	3.14	368.00	< .001
Malevolent image of God	2.54	1.19	2.29	4.89	1.77	5.14	1206.00	< .001
Divine origins	3.97	0.73	4.00	1.24	0.39	1.00	50.50	< .001
Evolutionary origins	2.79	0.92	3.00	4.26	0.78	4.33	905.50	< .001
Moral relativism	2.30	1.11	2.25	3.69	1.03	4.00	1534.50	< .001
Distrust towards atheists	2.44	0.57	2.43	1.64	0.48	1.57	1061.50	< .001

As could be predicted, participants who declared belief in God exhibited a significantly higher degree of all three types of religious orientations: extrinsic, intrinsic, and quest. The same conclusion applies to post-critical beliefs, with the exception of external critique (literal disbelief) in the level of which no significant difference emerged.

Apart from that, a difference in perception of the Divine was also identified. Namely, believing respondents saw God as significantly more benevolent, while the non-believing ones considered him malevolent to a significantly greater extent. Moreover, it turned out that

believers hold the belief that morality is of divine origin more strongly than their outgroup. With regard to belief in the evolutionary origins of morality as well as moral relativism, it was the non-believers who exhibited them to a significantly higher degree. Finally, participants believing in God distrusted atheists significantly more than the non-believers themselves did.

Table 31

Intergroup Differences in Moral Rigidity, Evolution Literacy, and Moral Motivation

Item	Believers (n = 104)			Non-believers (n = 78)			U	p
	M	*SD*	*Me*	*M*	*SD*	*Me*		
MR1	4.47	0.75	5.00	3.72	0.99	4.00	2207.00	< .001
MR2	2.34	1.21	2.00	3.77	1.08	4.00	1646.50	< .001
EV1	2.79	1.33	3.00	1.44	0.89	1.00	1588.00	< .001
EV2	3.30	1.30	4.00	4.79	0.47	5.00	1177.00	< .001
EV3	3.52	1.06	3.00	1.19	0.56	1.00	430.50	< .001
MM1	4.14	1.06	4.00	1.09	0.37	1.00	127.50	< .001
MM2	3.50	1.24	4.00	4.68	0.52	5.00	1610.50	< .001
MM3	2.50	1.16	2.00	1.06	0.25	1.00	833.00	< .001

Note. MR1 - One should follow clear moral principles and not depart from them, MR2 - Deviation from moral principles is allowed if the situation (emergency situations) so requires, EV1 - Evolution is just a theory, EV2 - Evolution is a proven fact as much as gravity is, EV3 - God shaped the process of evolution at several points in history, MM1 - When I behave morally, I do so to obey God's will, MM2 - When I act morally, I do so because I want to live up to my own standards, MM3 - I resist the temptation to act immorally, because I fear Divine punishment.

Comparison presented in Table 31 yielded some intriguing results. In terms of moral rigidity, measured with two items, participants who believe in God exhibited significantly higher level thereof. In particular, believers endorsed strict following of one's moral principles to a greater degree, while non-believers expressed stronger agreement to bending the rules in situations that require it.

As for evolution literacy, assessed by three items, non-believing respondents displayed it to a significantly higher degree. Although both theists and atheists disagreed with a statement saying that evolution is only a theory, the former were less sure about their answers as mean and median were close or equal to the middle point of the response scale. Similarly, believers and non-believers alike endorsed the assertion that evolution has been proved and is a fact just like gravity. Still, theists agreed with this item to a significantly lower degree in comparison to atheists, with mean again being close to the neutral point of the response scale. The biggest disagreement emerged with regard to the statement on God's role in evolutionary processes. Non-believers strongly opposed the idea that a deity could have influenced how evolution unfolded, while believers answered rather neutrally, though the mean was closer to *rather agree* (4) than to *no opinion/I do not know* (3).

The comparison also revealed that fulfilling the will of God is a significantly stronger motivation behind moral acts for theists. On the other hand, atheists declared being significantly more inclined to behave morally due to a desire to follow their own standards of acting. Lastly, as could be expected, non-believers displayed significantly stronger disagreement with the statement saying that they avoid indulging in immoral behavior out of fear of Divine punishment. Though believers also did disagree, they were less extreme in expressing that opinion. This is quite surprising as on average believers perceived God as a benevolent rather than punishing Father.

Correlates of Religion-Based Prejudice

In the next step, a correlation analysis was performed to test the second hypothesis, which predicted a positive relationship between religiosity and anti-atheist prejudice. Not only religious orientations were taken into account as potential correlates, though - all other religiosity-related concepts, evolution literacy, and atheist distrust were included in the analyses in an exploratory manner.

Though anti-atheism was expected to emerge only in the believer group, the coefficients were calculated for the non-believing participants as well. As showcased in the previous section, not only believers exhibited bias towards the outgroup. In fact, atheists displayed even stronger ingroup favoritism. Taking this finding into account, the correlation analysis was extended accordingly to look for correlates of anti-theism.

The coefficient of choice was Spearman's *rho* as the attitude indices were non-normally distributed. Moreover, a one-sided significance test was performed for correlations with religious orientations due to the directional character of the second hypothesis. Tables 32 and 33 present the correlations between intergroup attitudes and scales (post-critical beliefs, image of God, meta-ethical beliefs, atheist distrust) for believers and non-believers, respectively. Table 34 shows the coefficients for the relationship between intergroup attitudes and single item measures (moral rigidity, evolution literacy, and moral motivation) for both groups.

Table 32

Correlates of Intergroup Attitudes (Religiosity-Related Concepts and Atheist Distrust) in the Believer Group (n = 104)

Variable	Atheists	Christians	Muslims	Group preference
Extrinsic religiosity	-.05	.03	-.09	.10

Variable	Atheists	Christians	Muslims	Group preference
Intrinsic religiosity	-.04	.26**	.13	.19*
Quest religiosity	.17*	-.01	.12	-.08
Orthodoxy	-.15	.30**	-.06	.28**
Second naïveté	.14	.13	.14	-.02
Relativism	.35***	-.10	.12	-.28**
External critique	.14	-.24*	.01	-.24*
Benevolent image of God	.17	.33**	.06	.08
Malevolent image of God	.06	-.14	.10	-.15
Divine origins	-.26**	.44***	-.08	.44***
Evolutionary origins	.20*	-.30**	.32**	-.30**
Moral relativism	.26**	-.24*	.16	-.30**
Distrust towards atheists	-.46***	.20*	-.34***	.44***

Note. Group preference refers to the attitude difference score (attitude towards Christians minus attitude towards atheists for believers).

*$p < .05$, **$p < .01$, ***$p < .001$

Firstly, it was found that attitude towards atheists was positively related to quest religious orientation, symbolic disbelief (relativism), and a meta-ethical belief in moral relativism and evolutionary origins of morality. At the same time, it was negatively correlated with believing in supernatural origins of morality and atheist distrust. In other words, individuals who have an open-minded, journey-focused approach to religion, do not affirm the existence of God, though interpret religious content symbolically, endorse an evolutionary basis of morality and disapprove of a divine one, reject universality of moral principles, and distrust atheists to a lesser extent, exhibit a more positive attitude towards non-believers. In the case of attitude towards Christians, the significant correlations were

more numerous. Namely, it was positively linked to intrinsic religious orientation, literal belief (orthodoxy), benevolent image of God, a belief in morality's divine origins, and atheist distrust. Negative links were found for literal disbelief (external critique), endorsement of evolutionary basis of morality, and moral relativism. This means that a more positive attitude towards Christians coincides with higher intrinsic religiosity, literal belief and interpretation of religious content, perceiving the Divine as a benevolent entity and the origin of morality, and with a higher degree of distrust towards atheists as well as with weaker criticism of religion due to literal understanding thereof and disapproval of the evolutionary origins of morality and relativism with regard to moral standards. Next, attitude towards Muslims was found to be positively linked to a meta-ethical belief in evolutionary origins of morality and negatively related to atheist distrust. That leads to a conclusion that the more positive individuals are towards followers of Islam, the more they endorse the belief that morality has its basis in evolution and the less atheist distrust they display.

Lastly, the index of group preference was positively correlated with intrinsic religious orientation, literal belief (orthodoxy), a belief in morality's divine origins, and distrust towards atheists, and negatively related to literal disbelief (external critique), symbolic disbelief (relativism), a belief in evolutionary origins of morality, and moral relativism. In conclusion, the difference between attitude towards ingroup and outgroup (in this case attitude towards Christians and atheists) is bigger for participants who show higher levels of intrinsic religiosity and belief (despite literal understanding of religious notions), stronger endorsement of supernatural basis of morality, and higher atheist distrust, but also for those who exhibit lower levels of disbelief (due to literal or symbolic interpretation of religion) and endorse evolutionary origins of morality and moral relativism to a lesser extent.

The coefficients were moderate at most.

Table 33

Correlates of Intergroup Attitudes (Religiosity-Related Concepts and Atheist Distrust) in the Non-Believer Group (n = 78)

Variable	Atheists	Christians	Muslims	Group preference
Extrinsic religiosity	-.12	.01	-.05	-.05
Intrinsic religiosity	-.01	-.02	-.05	.02
Quest religiosity	-.14	-.05	-.05	.00
Orthodoxy	-.17	-.02	.03	-.05
Second naïveté	-.25*	.00	.05	-.10
Relativism	-.21	.02	.03	-.10
External critique	-.21	-.18	-.09	.07
Benevolent image of God	-.15	.45***	.35**	-.45***
Malevolent image of God	.14	-.27*	-.21	.30**
Divine origins	-.07	.23*	.22	-.22*
Evolutionary origins	-.05	-.08	-.19	.05
Moral relativism	-.03	-.04	-.01	.02
Distrust towards atheists	-.37**	-.04	.03	-.14

Note. Group preference refers to the attitude difference score (attitude towards atheists - attitude towards Christians for non-believers).

*$p < .05$, **$p < .01$, ***$p < .001$

Compared to the correlation matrix for the believer group, not as many significant coefficients were found. It turned out that attitude towards atheists correlated negatively with symbolic affirmation (second naïveté) and atheist distrust. This means that the more positive non-believers are towards their ingroup members, the less they believe and interpret religion symbolically as well as the lower their distrust is. Additionally, attitude towards Christians

was positively related to benevolent image of God and deeming him to be the source of morality, and negatively associated with seeing the Divine as malevolent. In other words, atheists are more positive towards Christians the more they perceive God as caring (and less as sinister) and the stronger they endorse the belief that morality is of supernatural origin. Another positive link was identified between attitude towards Muslims and a benevolent image of God. It appears that non-believers are more positive towards followers of Islam if they perceive God as more compassionate. Finally, correlates of group preference index are the same as the ones for attitude towards Christians, only of opposite direction.

Just like in the believer group, the correlation coefficients were weak or moderate.

Table 34

Correlates of Intergroup Attitudes (Moral Rigidity, Evolution Literacy, and Moral Motivation)

Belief	Attitude	MR1	MR2	EV1	EV2	EV3	MM1	MM2	MM3
Yes	Atheists	-.19	.12	-.17	.26**	.00	-.02	.02	-.23*
	Christians	.35***	-.24*	.21*	-.21*	.07	.27**	-.04	.09
	Muslims	-.11	.10	-.24*	.28**	.00	-.01	.06	-.09
	Group preference	.35***	-.18	.27**	-.34***	.06	.16	.00	.24*
No	Atheists	.20	-.09	-.11	.01	-.06	-.07	-.16	-.23*
	Christians	-.06	-.18	.02	-.12	.33**	.21	-.11	.08
	Muslims	-.09	-.22	-.03	-.02	.19	.18	-.08	.13
	Group preference	.13	.11	-.10	.12	-.31**	-.22	.00	-.17

Note. MR1 - One should follow clear moral principles and not depart from them, MR2 - Deviation from moral principles is allowed if the situation (emergency situations) so requires, EV1 - Evolution is just a theory, EV2 - Evolution is a proven fact as much as gravity is, EV3 - God shaped the process of evolution at several points in history, MM1 - When I behave

morally, I do so to obey God's will, MM2 - When I act morally, I do so because I want to live up to my own standards, MM3 - I resist the temptation to act immorally, because I fear Divine punishment. Group preference refers to the attitude difference score (attitude towards Christians - attitude towards atheists for believers, attitude towards atheists - attitude towards Christians for non-believers).

*$p < .05$, **$p < .01$, ***$p < .001$

Most of the significant correlation coefficients were observed for theist participants. In particular, it was found that attitude towards atheists was positively related to the second evolution literacy item and at the same time negatively to the third moral motivation item. That is to say that the more positively believers perceive non-believers, the more they agree that evolution is a fact and the less they are motivated to do good by the fear of supernatural punishment. Furthermore, attitude towards Christians correlated positively with the first moral rigidity item, first evolution literacy item, and the first moral motivation item. It was also negatively related to the second item of moral rigidity and evolution literacy. This leads to a conclusion that a more positive evaluation of the ingroup is accompanied by a stronger moral inflexibility as well as deeming evolution to be a mere theory (in the colloquial meaning of the word) and motivating one's moral behavior with wanting to follow the will of God. As for the attitude towards Muslims, it was positively linked to the second evolution literacy item and negatively related to the first item of the same scale. This means that theists approving of evolution are also more positive towards followers of Islam. Lastly, the group preference index correlated positively with the first moral rigidity item, first evolution literacy item, and third moral motivation item as well as negatively with the second evolution literacy item. In other words, the more believers favor their ingroup (the bigger the difference in attitudes is), the more they endorse a strict following of moral rules, consider evolution a

theory only, and act morally out of fear of punishment. Moreover, this favoritism is stronger the less they approve of evolution's scientific status.

Only three significant relationships were found in the group of non-believing participants: a negative correlation between attitude towards atheists and the third moral motivation item, a positive correlation between attitude towards Christians and the third evolution literacy item, and a negative correlation between group preference index and the third evolution literacy item. This means that the more positive non-believers are towards their ingroup members, the less they endorse the notion of behaving morally due to fear of punishment. What is especially interesting though is that atheists who more strongly approve of the idea that God intervened in the process of evolution are at the same time more positive towards Christians and favor their own ingroup to a lesser extent.

Strength of these relationships was moderate at most.

Mediation Analyses

The last section of the analysis is divided into two parts and focuses on examining mediation models in order to better understand the relationship between intrinsic religious orientation and anti-atheist prejudice among believers. Firstly, I estimated several simple mediation models to replicate the results from Study 1, where the aforementioned link was mediated by, among others, literal belief (orthodoxy), symbolic belief (second naïveté), perceiving atheists as threatening trust, a meta-ethical belief in divine basis of morality, and political worldview. Not all of the variables were the same across Study 1 and 3, so this step also included exploratory analyses. Next, I tested the third assumption according to which the relationship between intrinsic religiosity and anti-atheism is mediated by beliefs in divine origins of morality and distrust towards atheists, which operate in an identifiable sequence. It needs to be highlighted here that intrinsic religious orientation was significantly related only to the group preference index, but not to attitude towards atheists. In spite of that, attitude

towards atheists was still used as a dependent variable in the analyses due to the fact that mediation can occur even if no relationship has been identified between independent and dependent variable. Such a situation would be an example of suppression effect, where the indirect and direct effects have opposite signs and effectively cancel each other out (e.g., MacKinnon, Krull, & Lockwood, 2000; Shrout & Bolger, 2002).

All of the mediation analyses were carried out using the PROCESS macro for IBM SPSS (version 3.3, Hayes, 2018) and performed on the believer sample only. The statistical significance of the indirect effects was tested through bootstrapping (10,000 samples, 95% percentile confidence intervals).

Simple Mediation Analysis

As was already mentioned, this part of the analysis was aimed at replicating the results of Study 1. For that reason, post-critical beliefs, image of God, belief in divine origins of morality, distrust of atheists, and political worldview were entered into the procedure as mediators of intrinsic religiosity - anti-atheism link. As some of the variables measured in Study 3 did not appear in Study 1, they were introduced to the analysis in an exploratory manner. Those were the following: meta-ethical beliefs in evolutionary origins of morality and moral relativism, a mean of moral rigidity items, and single items from moral rigidity, evolution literacy, and moral motivation scales. In total, 20 mediators were tested. However, the final number of estimated models was equal to 40 as two different variables were used as the dependent one - feeling thermometer measuring attitude towards atheists and the group preference index.

Table 35 presents the results of the mediation analysis for attitude towards atheists, while Table 36 shows the analogous findings for the group preference index. Only the models with a significant indirect effect are shown.

Table 35

Simple Mediation Analyses for the Relationship Between Intrinsic Religiosity and Attitude Towards Atheists in the Believer Group

Mediator	Path					
	a	*b*	*c'*	*c*	*ab* [95% CI]	Standardized *ab* [95% CI]
Relativism	-0.45**	0.25**	0.07	-0.05	-0.11 [-0.36, -0.02]	-0.09 [-0.23, -0.02]
Divine origins	0.60***	-0.30*	0.13	-0.05	**-0.18 [-0.38, -0.03]**	**-0.15 [-0.30, -0.03]**
Moral relativism	-0.29	0.16*	-0.00	-0.05	-0.05 [-0.15, -0.00]	-0.04 [-0.10, -0.00]
Political worldview	0.60**	-0.22***	0.08	-0.05	-0.13 [-0.28, -0.05]	-0.11 [-0.20, -0.04]

Note. *a* - effect of the IV on the mediator, *b* - effect of the mediator on the DV, *c'* - direct effect of the IV on the DV, *c* - total effect of the IV on the DV, *ab* - indirect effect of the IV on the DV through the mediator, CI - confidence interval.

*$p < .05$, **$p < .01$, ***$p < .001$

Table 36

Simple Mediation Analyses for the Relationship Between Intrinsic Religiosity and Group Preference Index in the Believer Group

Mediator	Path					
	a	*b*	*c'*	*c*	*ab* [95% CI]	Standardized *ab* [95% CI]
Orthodoxy	0.54***	0.27*	0.24	0.38*	0.15 [0.02, 0.39]	0.09 [0.01, 0.20]
Relativism	-0.45**	-0.28**	0.26	0.38*	0.13 [0.02, 0.45]	0.08 [0.01, 0.20]
External critique	-0.70***	-0.35*	0.13	0.38*	0.25 [0.03, 0.53]	0.15 [0.02, 0.30]
Divine origins	0.60***	0.67***	-0.02	0.38*	**0.40 [0.19, 0.74]**	**0.24 [0.11, 0.38]**
Evolutionary origins	-0.34*	-0.34**	0.27	0.38*	0.12 [0.03, 0.32]	0.07 [0.02, 0.14]
Moral relativism	-0.29	-0.27**	0.30	0.38*	0.08 [0.01, 0.27]	0.05 [0.00, 0.12]
Moral rigidity	0.31**	0.42**	0.25	0.38*	0.13 [0.02, 0.33]	0.08 [0.01, 0.17]
Political worldview	0.60**	0.34***	0.18	0.38*	0.20 [0.08, 0.42]	0.12 [0.04, 0.21]

Note. *a* - effect of the IV on the mediator, *b* - effect of the mediator on the DV, *c'* - direct effect of the IV on the DV, *c* - total effect of the IV on the DV, *ab* - indirect effect of the IV on the DV through the mediator, CI - confidence interval.

*$p < .05$, **$p < .01$, ***$p < .001$

The results partially match those from Study 1. Namely, a meta-ethical belief in divine origins of morality as well as political worldview remained significant mediators of the relationship between intrinsic religious orientation and attitude towards atheists. However, no evidence for a significant indirect effect of literal belief (orthodoxy), symbolic belief (second naïveté) or distrust of atheists was found. Instead, two previously not identified mediators emerged: symbolic disbelief (relativism) and a meta-ethical belief in moral relativism. All four fully mediated the religiosity-attitude link. It appears that higher intrinsic religiosity is connected with a stronger belief in supernatural origins of morality and with a more right-wing political outlook, which in turn are linked to a less positive attitude towards non-believers. As for symbolic disbelief (disbelief despite interpreting religious content symbolically) and believing in individualistic character of moral rules, the direction of effects is reverse (first negative, then positive). All of the indirect effects were negative. The strongest indirect effect was observed for the meta-ethical belief in divine origins of morality, and its size was medium. As was mentioned before, since there was no significant relationship between intrinsic religiosity and attitude towards atheists, it was possible that a suppression effect was present. Indeed, in all of these models, the indirect and direct effects had opposite signs, and the direct effects were nonsignificant. In conclusion, these were inconsistent mediation models and should be interpreted with caution.

As for the relationship between intrinsic religious orientation and group preference index, eight variables were found to be significant and full mediators. Four of these (relativism, a belief in divine origins of morality and moral relativism, political worldview) were the same as the previously identified mediators of the religiosity-attitude towards atheists link. The other four were: literal belief (orthodoxy), literal disbelief (external critique), a meta-ethical belief in evolutionary basis of morality, and moral rigidity (a mean of two moral rigidity items). That means the results are an even closer match of the findings

from Study 1 as three out of five mediators identified there (literal belief, belief in morality's supernatural origin, and political worldview, but not symbolic belief or distrust of atheists) emerged as significant here. In line with the coefficients presented in Table 36, it can be concluded that higher intrinsic religiosity is associated with stronger belief and literal interpretation of religious notions, stronger endorsement of divine basis of morality, a more stringent adherence to moral rules, and a more right-wing worldview, which in turn are related to a stronger preference for the ingroup (expressed by a bigger positive difference between attitude towards Christians and atheists). In the case of remaining mediators (literal and symbolic disbelief as well as the meta-ethical belief in evolutionary origins of morality and relative character of moral principles), the direction of the effect was negative. Once again, the meta-ethical belief in morality's divine origins appeared to be the strongest mediator, with a medium effect size. Moreover, indirect effects were all positive.

Serial Mediation Analysis

Finally, to test the last hypothesis of the study, which assumed that belief in divine origins of morality is an antecedent of distrust towards atheists, a serial mediation analysis was performed. Four different models were considered (variables listed in the following order: independent variable - mediator 1 - mediator 2 - dependent variable):

a) intrinsic religiosity - distrust towards atheists - belief in divine origins of morality - attitude towards atheists (Appendix K),
b) intrinsic religiosity - distrust towards atheists - belief in divine origins of morality - group preference index (Appendix K),
c) intrinsic religiosity - belief in divine origins of morality - distrust towards atheists - attitude towards atheists (Table 37),
d) intrinsic religiosity - belief in divine origins of morality - distrust towards atheists - group preference index (Table 38).

The first model did not achieve significance in either simple indirect effects ($ab_{distrust}$ = -0.04, CI [-0.18, 0.02]; ab_{divine} = -0.11, CI [-0.28, 0.03]), serial indirect effect ($ab_{distrust\text{-}divine}$ = -0.00, CI [-0.02, 0.00]), direct effect (c' = 0.10, p = .409) or total effect (c = -0.05, p = .684). In the second model, the relationship between intrinsic religiosity and group preference index was significantly and fully mediated by a belief in divine origins of morality (ab_{divine} = 0.31, CI [0.12, 0.57]; standardized ab_{divine} = 0.18, CI [0.07, 0.31]; c' = 0.01, p = .945; c = 0.38, p = .021), but not by distrust of atheists ($ab_{distrust}$ = 0.05, CI [-0.03, 0.22]). In addition, there was no evidence of serial mediation through distrust towards atheists and the belief in divine origins of morality ($ab_{distrust\text{-}divine}$ = 0.01, CI [-0.01, 0.05]).

Model 3 was the first one in which the evidence for serial mediation through the belief in divine origins of morality and distrust was found ($ab_{divine\text{-}distrust}$ = -0.07, CI [-0.17, -0.01]; standardized $ab_{divine\text{-}distrust}$ = -0.06, CI [-0.14, -0.01]), but no other effect was found to be significant there (ab_{divine} = -0.11, CI [-0.30, 0.03]; $ab_{distrust}$ = 0.03, CI [-0.11, 0.14]; c' = 0.10, p = .409; c = -0.05, p = .684). The final model, similarly to the third one, also did include a significant serial mediation effect through the belief in divine origins of morality and atheist distrust ($ab_{divine\text{-}distrust}$ = 0.09, CI [0.01, 0.21]; standardized $ab_{divine\text{-}distrust}$ = 0.05, CI [0.01, 0.12]). There was also a significant indirect effect of the aforementioned meta-ethical belief (ab_{divine} = 0.32, CI [0.13, 0.59]; standardized ab_{divine} = 0.19, CI [0.07, 0.32]), but not of distrust ($ab_{distrust}$ = -0.03, CI [-0.18, 0.14]). Total effect was significant as well (c = 0.38, p = .021), unlike the direct one (c' = 0.01, p = .945). Moreover, two significant differences were identified: between the indirect effects of the belief in divine origins of morality and distrust (difference = 0.35, CI [0.08, 0.66]; standardized difference = 0.21, CI [0.04, 0.37]) and between the indirect effect of the belief in divine origins of morality and the indirect effect of serial mediation through belief in divine origins of morality and distrust (difference = 0.23, CI [0.01, 0.50]; standardized difference = 0.14, CI [0.01, 0.28]).

Table 37

Serial Mediation Model (Intrinsic Religiosity - Belief in Divine Origins of Morality - Distrust - Attitude Towards Atheists)

		Consequent									
		M1 (Divine origins)				M2 (Distrust)				Y (Attitude towards atheists)	
Antecedent		Coeff.	*SE*	*p*		Coeff.	*SE*	*p*		Coeff.	*SE*	*p*
X (Religiosity)	a_1	0.60	0.10	< .001	a_2	-0.05	0.10	.637	c'	0.10	0.13	.409
M1 (Divine o.)		-	-	-	d_{21}	0.21	0.09	.016	b_1	-0.18	0.11	.106
M2 (Distrust)		-	-	-		-	-	-	b_2	-0.54	0.12	< .001
Constant	i_{M1}	1.54	0.40	< .001	i_{M2}	1.79	0.38	< .001	i_Y	4.99	0.52	< .001
		$R^2 = .27$				$R^2 = .06$				$R^2 = .21$		
		$F(1, 102) = 37.66, p < .001$				$F(2, 101) = 3.43, p = .036$				$F(3, 100) = 8.98, p < .001$		

Note. M1 - mediator 1, M2 - mediator 2, $a_{1, 2}$ - effect of the IV on the mediator 1/2, $b_{1, 2}$ - effect of the mediator 1/2 on the DV, c' - direct effect of the IV on the DV, d_{21} - effect of the first mediator on the second mediator.

Table 38

Serial Mediation Model (Intrinsic Religiosity - Belief in Divine Origins of Morality - Distrust - Group Preference Index)

		Consequent									
		M1 (Divine origins)				M2 (Distrust)				Y (Group preference index)	
Antecedent		Coeff.	*SE*	*p*		Coeff.	*SE*	*p*		Coeff.	*SE*	*p*
X (Religiosity)	a_1	0.60	0.10	< .001	a_2	-0.05	0.10	.637	c'	0.01	0.16	.945
M1 (Divine o.)		-	-	-	d_{21}	0.21	0.09	.016	b_1	0.53	0.14	< .001
M2 (Distrust)		-	-	-		-	-	-	b_2	0.68	0.16	< .001
Constant	i_{M1}	1.54	0.40	< .001	i_{M2}	1.79	0.38	< .001	i_Y	-2.87	0.67	< .001
		$R^2 = .27$				$R^2 = .06$				$R^2 = .33$		
		$F(1, 102) = 37.66, p < .001$				$F(2, 101) = 3.43, p = .036$				$F(3, 100) = 16.19, p < .001$		

Note. M1 - mediator 1, M2 - mediator 2, $a_{1,2}$ - effect of the IV on the mediator 1/2, $b_{1,2}$ - effect of the mediator 1/2 on the DV, c' - direct effect of the IV on the DV, d_{21} - effect of the first mediator on the second mediator.

Discussion

The third and last study of the present dissertation had two aims. The first was to replicate the findings from Study 1 and the second - to build upon them and delve deeper into the relationship between intrinsic religiosity and attitude towards atheists, with special attention given to meta-ethical beliefs and distrust towards non-believers.

Though some of the instruments had been changed substantially compared to those administered in the first study (attitude scale, beliefs on origins of morality), the replication can be considered a success. The first hypothesis, which stated that religious and non-religious individuals are prejudiced against each other, has been confirmed. Participants who declared belief in God did exhibit a significantly less positive attitude towards atheists, while non-believers were more positive towards their ingroup members than towards theists. In both cases, one could say that the average attitude towards the outgroup was rather neutral than negative, though, as the means were close to the middle of the response scale.

Additional comparison of the group preference score (attitude towards the ingroup minus attitude towards the outgroup, see the note for Table 29), calculated to analyze these favoritism tendencies in more depth, revealed that on average theists' evaluation of their ingroup members is almost one point higher, and for atheists - 1.5 points higher (on a five-point scale). Such findings are indicative of both anti-atheist and anti-theist attitudes amongst the respondents, with the latter being significantly stronger. In other words, this is an example of a case in which prejudice against majority is stronger than the prejudice against minority as only 3% of Polish citizens declare being atheists (Główny Urząd Statystyczny, 2018). Future studies should not overlook this evident mutuality of religion-based prejudice, especially since it is anti-theism that appears to be more powerful and, in consequence, possibly more harmful.

It is also worth noting that findings with regard to Muslims were similar as in the first study. Namely, theists' attitude towards followers of Islam was the least positive, and atheists saw them as negatively as Christians. These results directly contradict the religious prosociality hypothesis, in line with which attitude towards adherents of a religion different than one's own should be more positive than towards non-believers. Clearly, this was not the case - neither in Study 1 nor Study 3. As was already mentioned, Poles often associate Muslims with violence and terrorism. Followers of Islam were seen as posing realistic threat by 50.4% of Polish citizens, and 49.2% of respondents declared fearing a terrorist attack and being its victim themselves (Stefaniak, 2015). As perceived threat to safety and fear appear to be the core components of anti-Muslim attitude, it is probable that these strong reactions override the mitigating effect that religious belonging has on religion-based prejudice. Such a possibility needs to be addressed in further investigations. Moreover, future studies should use a wider range of religious target groups (e.g., ones that do not induce such a high level of fear) to test the predictions derived from the religious prosociality hypothesis in greater detail.

The first study's results have also been replicated with regard to the predicted positive relationship between religiosity and anti-atheism. This time, the correlational patterns were examined differently: instead of controlling for the level of intrinsic religiosity by computing partial correlation, I calculated the coefficients for theists and atheists separately. Despite the distinct mode of analysis, it was still found that intrinsic religious orientation, literal affirmation of religious content (orthodoxy) as well as distrust towards atheists and believing in divine origins of morality all correlate positively with anti-atheist attitude. In comparison to the first study, the only correlation that did not emerge again was the link between attitude towards atheists and perceiving God as benevolent. Notably, the two newly introduced types of meta-ethical beliefs, that is holding a belief in evolutionary origins of morality and moral

relativism, weaken anti-atheism. This might have to do with higher cognitive flexibility implied by these specific meta-ethical commitments. Acknowledging the possibility that morality could have emerged as a result of evolutionary processes might allow seeing that atheists are also capable of behaving morally, even if they do not believe. As the intuitive attribution of immorality to atheists is at the core of anti-atheist prejudice, it seems reasonable to assume that endorsing the evolutionary origins of morality would result in less negative attitude towards non-believers.

Testing the second hypothesis was not limited to replicating the previous results only as the correlational analysis was extended to moral rigidity and moral motivation. Here, two additional significant relationships were identified. The first one was a positive link between anti-atheism and a conviction that moral rules should be strictly followed, which is in line with prior research (Shen et al., 2013). Again, it could be attributed to the very nature of moral rigidity, which implies limited openness to and tolerance of other points of view. Association between refraining from immoral behavior due to fear of supernatural punishment and higher anti-atheist attitude was identified as the second. According to the religious prosociality hypothesis, it is the unavoidable divine sanctions that discourage people from transgressions. However, if that is so, it should also discourage discriminatory behavior. It is not necessarily a contradictory finding, though. It is possible that fear of divine punishment has some negative social consequences - for example by inducing avoidance of non-believers who might be considered a source of potential corruption. Interestingly, such a recommendation can be found in the Holy Scripture itself: “Do not be mismatched with unbelievers. For what partnership is there between righteousness and lawlessness? Or what fellowship is there between light and darkness?” (*New Revised Standard Version*, 1989, 2 Corinthians 6:14) or “Do not be deceived: ‘Bad company ruins good morals.’ ” (*New Revised Standard Version*, 1989, 1 Corinthians 15:33).

The last hypothesis of the third study was its core assumption. Namely, I posited that not only do belief in divine origins of morality and atheist distrust both mediate the relationship between intrinsic religiosity and anti-atheism, but that they in fact operate in a certain identifiable sequence. Therefore, serial multiple mediation analysis was performed, and its results corroborated the aforementioned proposition. A significant path from intrinsic religiosity through the belief in divine origins of morality and atheist distrust to anti-atheism was found. The pathway with reversed order of mediators, which was subsequently tested, did not achieve significance, which provided further support for the hypothesis. In other words, it can be said that internalized religiosity, expressed by intrinsic religious orientation, is linked to the belief that morality has a supernatural source, which in turn is associated with the perception of atheists as individuals who should not be trusted, and that is finally connected to higher anti-atheism.

Undoubtedly, the belief that a supernatural being entrusted moral principles to humankind is an inherent element of world's major monotheistic religions, Christianity and Islam included. In that sense, God serves as the ultimate reference point - he is the root and the keeper of what is right and wrong. From a standpoint of such a meta-ethical position, not believing in a deity might automatically imply inability to act morally as one does not have access to morality's original source and in consequence cannot attain moral knowledge. Is the belief in divine origins of morality truly so powerful and its aftermath so far-reaching, though? It would seem so as the available data speak in favor of an affirmative answer. Atheists worldwide are deemed immoral, and unethical behavior is seen as typical of them in comparison to theists (Gervais, 2014; Gervais et al., 2017). This intuitive mental link is so strong and pervasive that even priming the concept of morality's innateness did not lessen its intensity (Mudd, Najle, Ng, & Gervais, 2015). For this reason, I argue that this specific type of a meta-ethical belief, that is belief in exclusively divine origins of morality, is the core

element of anti-atheist prejudice, and atheist distrust is one of its weighty consequences. Results of the third study provide the first evidence for this assertion. However, it is equally important to highlight that this effect was shown only for cross-sectional data. In other words, no causal process can be inferred from it. Future research should accommodate this limitation and employ experimental study design to further examine this theoretical proposition.

These findings call for a change of conceptual focus from atheist distrust to belief in divine origins of morality. Not only does it mean that additional insight into anti-atheism dynamics has been achieved, but more importantly - it points towards the possibility that the core of anti-atheist prejudice lies in perception of morality, not in perception of non-believers themselves.

Moreover, multidimensionality of the acquired data provided an opportunity for a more exploratory approach to analysis. As it turned out, not only the attitude towards the three target groups differed significantly between the subsamples. Of course, theists scored higher on all three types of religious orientations as well as on both literal and symbolic belief styles of coping with religious content (except for the literal disbelief style). However, they also exhibited significantly higher level of relativism, which seems peculiar. Relativism refers to interpreting religion symbolically while denying the existence of a deity. As post-critical beliefs are not mutually exclusive, it is possible for an individual to adopt different types of these coping styles. Still, endorsing relativism appears to be quite unlikely in people who at the same time declare belief in God. Though both the mean and the median oscillated around the middle point of the response scale, a result significantly higher than the one for non-believers needs further investigation.

Moreover, theists also perceived God as more benevolent and less malevolent. With regard to meta-ethical commitments, believers held a significantly stronger belief in divine origins of morality, while their belief in evolutionary origins and their endorsement of moral

relativism was weaker. In addition, they exhibited stronger distrust of atheists than atheists themselves, which is in line with the religious prosociality hypothesis and at the same time is a likely sign of an ingroup bias.

While, to some extent, such differences could have been expected, a rather low average score (below the neutral point of the response scale) for the belief in evolutionary origins of morality in the theist subgroup was quite intriguing. For that reason, group differences in terms of evolution literacy were further examined. It turned out that believers displayed reluctance to treat evolution as a fact and not merely a theory, a finding in line with previous research (e.g., Ecklund, Scheitle, Peifer, & Bolger, 2017; Mazur, 2004). At the same time, they still endorsed the statement claiming that God had his share in the evolutionary processes, and the average approval of this belief was above the middle point of the response scale. In fact, such a conviction could be attributed to a broader view, namely theistic evolutionism, which is an attempt to reconcile faith and science by proposing a middle ground theory (though not in a scientific meaning of the word) of evolution as a process commanded by God (e.g., Collins, 2006). Apart from the level of endorsement being significantly higher for believers than for non-believers, nearly half (47.2%) of theist participants agreed, to a large or some extent, with a statement that God influenced evolution processes throughout history. In a study conducted in 2015 (Pew Research Center, 2017), the percentage of endorsement of an equivalent item was equal to 13%, though it has to be noted that the religiosity level was not controlled for there. These findings imply that amongst Poles there are at least three distinct attitudes towards evolution that seem to clash with each other: rejection, acceptance, and religious integration in the form of theistic evolutionism.

Evolution literacy among believers was also found to be related to anti-atheist prejudice. Namely, denying the theory of evolution its scientific status correlated with a less favorable approach to non-believers and a more positive one towards Christians. It is also

worth noting that believers were more positive towards both atheists and Muslims the more they endorsed the statement equating the validity of theories of evolution and gravity. In general, these results might have to do with turning down the possibility that morality could have originated in evolutionary processes, which is a natural consequence of rejecting the theory of evolution altogether. As was discussed above, the conviction that morality is of exclusively divine origins might sometimes translate into negative attitudes towards those who do not believe.

It was also possible to identify some correlates of anti-theist prejudice. Higher anti-theism was linked to perceiving God as more malevolent and less benevolent as well as to endorsing the belief in divine origins of morality to a lesser extent. Moreover, it was observed that the stronger the anti-theist attitude, the lower the endorsement of a belief in God's intervention in evolution. Here, it is worth referring to the results of the open-ended part of the pilot study. Many of the provided answers were quite harsh and described the flaws of religion at length (e.g., hypocrisy, inconsistencies, manipulative behavior), but not of believers themselves. The connection between a more negative image of God (e.g., punitive or merciless) and anti-theist prejudice might be an extension of this finding, namely having a negative attitude towards religion, and God at its center, could affect how non-believers relate to and how they see believers. In other words, a mere association with a negatively perceived religion or its deity might result in discriminatory behavior or less positive attitudes. Such a possibility has yet to be investigated in more detail.

In terms of limitations, there are three main points. First of all, the subsamples of religious and non-religious participants differed with regard to gender, age, and political worldview (though not education as in both groups most of the respondents had a university degree). This means that their comparability is diminished, and the external validity is potentially reduced. Next, some of the administered measures were both newly designed and

short. Of course, this leads to a question how reliable and valid they are. Certainly, in future studies different instruments assessing evolution literacy, moral motivation, and rigidity should be used. Lastly, though generally the sample size was satisfactory in terms of statistical power, forthcoming research should maximize the number of observations to ensure better estimation of mediation effects.

To summarize, not only do the findings of the final study offer unique insight into dynamics and correlates of anti-atheism, but they also allow taking a first look at the reverse phenomenon - anti-theism. In the age of rapid changes of the religious structure of the societies worldwide, it is necessary to pay more attention to religion-based prejudice - to understand it better in order to counteract. It appears that its core might in fact lie in the perception of morality, religion, and God, and not in the perception of theists and atheists themselves. The main finding of the present study, and arguably - the present dissertation, namely identification of the role that the belief in divine origins of morality plays in anti-atheist prejudice, provides the first evidence for this bold assertion. By no means a causal claim, it shows the importance of further research and, especially, going beyond cross-sectional data.

General Discussion

Anti-atheist prejudice is certainly not a newly emerging phenomenon. Throughout the years, religious figures, philosophers, political leaders - all having a great deal of influence on society - continuously spoke against non-believers, even going as far as excluding them as citizens. History provides many examples: Thomas Aquinas, John Locke, and more recently - Ronald Reagan, to name just a few - all of whom persecuted or encouraged persecution of atheists. Anti-atheism of today could be considered an aftermath of the stereotypes perpetuated for many years. Nowadays, non-believers are automatically associated with immorality (Gervais et al., 2017), lower empathy and higher narcissism (Dubendorff & Luchner, 2017), and are distrusted due to their lack of faith (Gervais et al., 2011). The fact that these negative perceptions of atheists are widespread is alarming, to say the least.

What is even more astounding, though, is that studies of anti-atheist prejudice were almost non-existent in the social sciences until the 2000-2010s. Of course, this scientific neglect does not mean that they are not targets of discrimination - quite the contrary. Secularization might be on the rise, yet atheists are still a minority in countries where most of the inhabitants are religious. Therefore, the need to analyze anti-atheist sentiments is ever-growing.

For that reason, the present dissertation was, in its entirety, devoted to the examination of religion-based prejudice, with a particular focus on anti-atheism. In retrospect, four studies carried out within the framework of this project were aimed at answering a single overarching research question, namely - is distrust really what drives anti-atheist prejudice? The initial objective was, however, quite different and evolved as the dissertation progressed. To illustrate this, a brief summary of the studies, hypotheses, and findings is due.

Summary of the Studies

The pilot study, very simple in its design, was purely exploratory, and no hypotheses were posited. Its main purpose was to preliminarily assess how atheism is perceived and understood in Poland. A simple question on whether becoming an atheist is worth it generated many quite emotional responses, which gave the first insight into the dynamics of the complicated relationship between believers and non-believers. Theists mostly referred to meaninglessness of life without God or perspective of the afterlife as well as strongly underlined that morality stems from a divine source. Moreover, they equated lack of belief with a potential lack of moral compass and experiencing negative emotions. Atheists, on the other hand, often referred to the impossibility of reconciling science and religion and underlined intellectual freedom that comes with disbelief. Even though the question pertained to atheism only, these answers showed that it is virtually impossible to undertake anti-atheism studies without considering the counterprejudice - that is anti-theist attitudes.

The first of the core studies was focused on verifying the threat-emotion profile of anti-atheist prejudice. Using the sociofunctional approach to prejudice and religious prosociality hypothesis as the theoretical background, I assumed that perceived threat to trust and anger will be the basic components of anti-atheism. Moreover, I expected religiosity to be positively related to anti-atheist prejudice, and that religious participants will be more negative towards atheists (in comparison to their ingroup), but less negative towards followers of a religion other than their own (as compared to non-believers). As it turned out, the main hypothesis received mixed support. In the religious subsample, atheists were not perceived as threatening trust to a higher extent than the ingroup, although perceived threat to trust did correlate very strongly with anti-atheist prejudice. At the same time, two other types of perceived threat, threat to safety and threat of disrespect, were also significantly related to anti-atheism, though these relationships were slightly weaker. The results were even blurrier

when it came to the hypothesized anti-atheist threat-emotion profile. In the atheist condition, the strongest correlate of perceived threat to trust turned out to be fear, not anger. In addition, the threat-emotion correlation patterns differed across conditions (e.g., anger was the strongest correlate of perceived threat to trust in Muslim condition). A similar conclusion could be drawn from regression analyses, where anger was most often significantly predicted by perceived threat to safety. However, it was specifically perceived threat to trust that partially mediated the relationship between intrinsic religious orientation and anti-atheist prejudice. No other type of perceived threat emerged as a significant mediator, partial or full. Similarly, secondary hypotheses of Study 1 received only partial support. Though intrinsic religious orientation was indeed positively related to anti-atheism, religious participants were the most negative towards Muslims, not atheists. At the same time, the non-religious ones were more negative towards both Christians and Muslims than towards atheists.

Testing the threat-emotion profile of anti-atheist prejudice proved to be quite problematic, particularly due to the shortcomings of the threat questionnaire design, and ultimately led to more questions than answers. Nevertheless, Study 1 still turned out to be very informative, especially in its exploratory aspect. Many concepts related to religiosity were measured, among others, one's beliefs on the origins of morality. Intrigued by the answers theists provided in the pilot study, in particular with regard to inability to live morally without faith, I decided to include four items that would assess these convictions. Quite surprisingly, one of these items (*God is the source of morality*) as well as the aggregate score significantly and fully mediated the religiosity - anti-atheist prejudice link. This finding brought the broader concept of meta-ethical beliefs to my attention. It was these beliefs on morality itself that became the focus of the next two studies.

Do meta-ethical beliefs matter and if so - how do they come into play? I attempted to answer these research questions by combining the theoretical perspectives of meta-ethics

(and in particular the divine command theory, the main assertion of which is that what is right and wrong is determined by the will of God; Adams, 1979) with the sociofunctional approach to prejudice and the religious prosociality hypothesis. In line with the notion of religious prosociality, belief in God is a cue of trustworthiness. Supernatural punishment hypothesis explains this phenomenon by highlighting the divine omnipresence and unavoidable monitoring of human deeds. There is no escape from God's watchful eyes, and no evil is left overlooked. In other words, believers are more likely to refrain from immoral acts and engage in prosocial ones as they feel constantly watched. Moreover, they exhibit costly behaviors to signal their dedication to the Divine. However, does it automatically follow that atheists should be distrusted? Why are they perceived as untrustworthy - because they are more likely to do wrong due to their indifference to a prospect of supernatural punishment or because they cannot behave morally by virtue of their non-belief? Here, I hypothesized that a specific meta-ethical belief, that is, an implicit assumption about morality's exclusively divine origin, links intrinsic religiosity with distrusting atheists, which then leads to anti-atheist attitudes.

Of course, meta-ethical beliefs are not limited to beliefs on morality's origins only. In order to thoroughly analyze the connection between intrinsic religiosity, meta-ethical commitments, and anti-atheist prejudice, a comprehensive measure was needed. As only Morality Founded on Divine Authority scale (Piazza & Landy, 2013; Simpson et al., 2016) was available at the time, the second study was devoted to developing an instrument that could capture a broader range of meta-ethical convictions. My intention was to go beyond an exclusively religious point of view, and therefore the first version of the questionnaire consisted of two scales, measuring meta-ethical beliefs on both divine and evolutionary origins of morality. As I aimed at thorough assessment, the design process included creating items pertaining to, for example, sources of moral knowledge or objectivity of moral principles. The initial stage was concluded with a pretest study in which 173 Polish

participants took part. The number of items was reduced from 20 to 12 through exploratory factor analysis, but at the same time one more factor was extracted. The final version of the Meta-Ethical Beliefs Questionnaire has three scales: divine origins (α = .93, seven items), moral relativism (α = .65, two items), and evolutionary origins (α = .69, three items). Not only does it show satisfactory reliability, but also known-groups validity, and thus is a successful first step in creating a multidimensional measure of meta-ethical commitments.

After having developed a questionnaire of meta-ethical beliefs, I utilized it in the third and final study of the present dissertation. Here, the aim was twofold: to replicate the results of the first study and to test the hypothesis regarding the meta-ethical beliefs and their role as a possible antecedent of distrust towards atheists. Namely, I hypothesized that belief in the divine nature of morality precedes distrust towards atheists, which then leads to anti-atheist prejudice.

Overall, the replication of the first study was successful. Believers were indeed more negative towards atheists than towards their ingroup, while exhibiting the most negative attitude towards Muslims. Secondly, atheists were again significantly more negative towards both religious outgroups (Christians and Muslims). In addition, a positive correlation between intrinsic religious orientation (but also religiosity-related constructs like post-critical beliefs) and anti-atheist prejudice was found, matching previously identified patterns.

The hypothesis regarding meta-ethical beliefs was tested through serial mediation analyses and was confirmed. It was shown that the relationship between intrinsic religious orientation and group preference score is fully mediated by a belief in morality's supernatural origin and atheist distrust, but such an effect did not appear if the order of the mediators was reversed or when attitude towards atheists was predicted. In other words, higher intrinsic religiosity was connected to a stronger belief in divine origins of morality which in turn was

associated with stronger distrust towards atheists and finally - stronger anti-atheist prejudice (that is, a higher group difference score).

To recapitulate, the presented studies have consistently shown the unprecedented role of religiosity in anti-atheism, a finding in line with the religious prosociality theory as well as the supernatural punishment hypothesis. Not only general religious orientation was found to be associated with anti-atheist prejudice, though. As a broad range of measures was administered in the first and the third study, it was possible to analyze the links between anti-atheism and certain religiosity- and morality-related concepts in more detail. That way, relationships with post-critical beliefs (Study 1/3), moral foundations (Study 1), religious fundamentalism (Study 1), moral rigidity (Study 3), and meta-ethical beliefs (Study 1/3) were identified. These findings showcase how intricately anti-atheist prejudice and religiosity are related as well as point towards possible research avenues.

Secondly, the results provided further evidence for the significant role of distrust towards atheists in anti-atheist attitudes. Non-believer distrust did mediate the link between intrinsic religious orientation and anti-atheism in the first study, in accordance with the predictions derived from the religious prosociality hypothesis and sociofunctional approach to prejudice. This perceived untrustworthiness of non-believers lies at the heart of anti-atheist prejudice studies, but is it truly what drives non-believer discrimination? In an attempt to answer this question, I argued that a certain condition has to be met in order to produce such a distrust. Specifically, I proposed that believing in morality's exclusively divine origin is the key here. As I expected, serial mediation analyses revealed a pattern consistent with predictions, namely that the link between intrinsic religiosity and anti-atheism is mediated by the meta-ethical belief in supernatural origins of morality and distrust towards atheists. Though this was but a first test of the hypothesis, the findings already show great promise and are another step towards attaining deeper insight into mechanisms behind atheist

discrimination. Nevertheless, it is necessary to move beyond strictly cross-sectional studies as making causal inferences with current data is not possible.

Lastly, evidence for reciprocal religion-based prejudice was found in both Study 1 and 3. However, contrary to predictions made, it was Muslims, not atheists, that received the most negative evaluations from religious participants. Though originally I aimed at analysis of anti-atheism exclusively, the results demonstrated that it is impossible or even undesirable to study atheists and theists in separation. Already the preliminary study supported this assertion as participants voiced sometimes very extreme opinions about the members of their religious outgroup.

As I have tried to showcase throughout the first part of this chapter, the research focus had changed in the course of the project and took its final form with the introduction of meta-ethical beliefs in the theoretical framework. Ultimately, the main aim of the dissertation was to answer a seemingly easy question: is distrust what lies at the core of anti-atheist prejudice? As much as providing a definite explanation is tempting, it is of course not that simple. After all, mental processes are not easy to dissect and do not give up without a fight. However, it is certainly possible to state that presented findings advance the scientific knowledge on the topic of anti-atheism and to present a preliminary, but rather bold conclusion, supported by the collected empirical data, which is as follows. I argue that distrust, though an integral aspect of anti-atheist prejudice, is not its central component. Instead, I propose that the conceptual focus should be switched from perceptions of atheists to perceptions of morality - in other words: from perceived untrustworthiness to a specific kind of beliefs about morality itself, namely beliefs on morality's supernatural origin. These convictions often coincide with belief in God (e.g., Pew Research Center, 2014), even though they are not necessarily a part of religious teachings and might lead to stigmatization of non-believers. Why would that be the case? Weighty consequences of attributing morality's origin to an exclusively

supernatural source include perceiving atheists as those who simply cannot act morally, because they deny God's existence and reject the Divine guidance. In line with the religious prosociality hypothesis, this perceived immorality, accompanied by a propensity to transgress the rules and free-ride on others' efforts, entails distrust and exclusion - and finally prejudice as a response to threat. Given these points and the presented data, I suggest that these specific meta-ethical commitments are the key to understanding anti-atheist prejudice and distrust towards atheists in particular. Though clearly in its infancy, I argue that this line of research offers an enticing opportunity to further dissect anti-atheism and as such is worth pursuing.

Contribution

The present dissertation offers both theoretical as well as methodological contributions to the literature on the subject as well as provides some practical implications. Arguably, its strongest point lies in the substantial extension of the theoretical framework. The amalgam of the sociofunctional approach to prejudice, the supernatural punishment hypothesis as well as religious prosociality theory, most commonly employed to analyze anti-atheist attitudes, has been enriched by introducing meta-ethical beliefs into this already intricate equation. Meta-ethical commitments, originating in meta-ethics, one of the main branches of moral philosophy, appear to be crucial in understanding distrust towards atheists, which is considered to be the core of anti-atheism, the most blatant of its signs. As such, they are a meaningful addition to the framework and should be thoroughly examined in further investigations. Here, it should be stressed that only one of the many types of such beliefs, namely beliefs on origins of morality, has been analyzed in the present dissertation, so there is yet much to explore. Moreover, redirecting the attention to meta-ethical commitments points towards the possibility that anti-atheism does not necessarily have its roots in perceptions of atheists themselves, but rather in perception of morality and attributing its source to an exclusively supernatural origin. In fact, to put it that way is to considerably

reformulate the approach to analyzing anti-atheist prejudice in the future. Furthermore, one needs to underline that this theoretical synthesis opens a path for an even more interdisciplinary approach, spanning through fields of moral philosophy, evolutionary and experimental psychology, sociology, anthropology, and religious studies, among others.

Going beyond the analysis of exclusively anti-atheism can be considered another strength of the present dissertation. Though attitude towards non-believers was undeniably in the center of attention, prejudice that atheists were exhibiting against Christians and Muslims was also examined. Specifically, the results of the dissertation's pilot study made it clear that both believers and non-believers display stereotyped perceptions of each other, even though the question to be answered was simply whether it is worth it to become an atheist. Additionally, Studies 1 and 3 showcased instances of anti-theist prejudice, regardless of the denomination. Firstly, this unexpected emergence of indiscriminate anti-theist attitudes calls for further examination. Secondly, it is worth noting here that studies on both types of religion-based prejudice are still scarce, but more importantly these topics are usually investigated separately, and in consequence the dynamics of intergroup relationships cannot be accounted for. As the discussed findings show, analyzing prejudice against both theists and atheists provides a more comprehensive picture as it allows for comparisons - not only in terms of general attitude, but also its components and correlates. The advantages of such an approach to religion-based intolerance cannot be overestimated.

It should also be emphasized that not only does the dissertation contribute to the still fairly limited literature on the subject, but on top of that the studies conducted for the purpose of this doctoral thesis are the first examples of examining anti-atheist prejudice using such a theoretical paradigm in a Polish context. Poland, one of the most religious countries in Europe and worldwide, served as a very informative research setting, given, for instance, how participants belonging to the atheist minority did not restrain themselves from expressing

negative attitude towards religious individuals. As was mentioned many times throughout this monograph, anti-atheism has only relatively recently received scientific attention, and research has been carried out mostly with American samples, with few notable exceptions (e.g., Gervais et al., 2017). What is more, atheism itself is not a frequently discussed topic in Polish academia. These few papers that do deal with it rarely touch upon the issue of anti-atheist prejudice and focus on, for example, characterizing atheists living in a Polish society (Tyrała, 2014) or comparing them with agnostics (Socha, 2012). Bearing that in mind, one can conclude that the present dissertation addresses the research gaps in more than one way.

With regard to methodological contributions, the most significant one is undoubtedly the questionnaire of meta-ethical commitments (MBQ) that was developed for the purpose of the present dissertation. Composed of three subscales, this measure is most likely the first instrument that captures different types of beliefs on the origins of morality. Already in its preliminary version it is characterized by satisfactory reliability and validity. Moreover, it proved very useful in the final study of this doctoral thesis. However, there is still much work to be done, and the next steps will include refinement (e.g., better phrasing of the items, going beyond the measurement of meta-ethical beliefs on the origins of morality exclusively) and English adaptation of MBQ.

Lastly, the findings are also of practical significance. They offer evidence for the mutuality of religion-based prejudice as well as emphasize the substantial role of one's beliefs about origins of morality in anti-atheist attitudes. This information can be used by practitioners to develop intervention strategies and raise social awareness of the issue at hand, which is pivotal as religious heterogeneity continues to grow (Pew Research Center, 2015). Furthermore, the question that needs to be posed here is as follows: is it possible to weaken anti-atheist attitudes by presenting evidence for morality other than supernatural? If perceptions of morality truly are at the core of anti-atheism, an affirmative answer appears to

be likely. Though at this point purely speculative, future studies should aim to investigate this possibility as it might be a potential way of counteracting anti-atheist prejudice.

Limitations

Presented research is of course not free from limitations, and three main problems could be identified. The first issue pertains to sampling and the method of data collection. Namely, the entirety of the data was obtained via online means (e.g., social media, discussion groups). Though very convenient, Internet-mediated research comes with certain risks (Padayachee, 2016). Common examples would be: researchers having limited control over who takes part in the study once it is published online or reaching only a specific subpopulation (e.g., individuals having access to the Internet, fluent in computer skills, aware of and already willing to participate in online surveys). This raises the issue of generalizability of the findings. Low response rate is another quite frequent problem from which the presented studies possibly suffered the most. One could argue that the mode of data collection was not the only reason behind the dropouts, though - the survey content itself appeared to have a similar effect. Many participants expressed their dissatisfaction with having to answer questions pertaining to religion while being atheists and refused to continue. On the other hand, online data collection appears to be a method of choice when dealing with sensitive topics (e.g., Gnambs & Kaspar, 2015; Langer & Beckman, 2005), religiosity and prejudice being possible examples of these. Moreover, at least in some research contexts, comparisons of results obtained through different modes (paper-based and online) have shown that they can be considered equivalent and consistent (e.g., Briones & Benham, 2017; Gosling, Vazire, Srivastava, & John, 2004). To address these limitations, the following countermeasures can be taken. Firstly, future research should be conducted through both paper-based and online modes of data collection to reach individuals who are not likely to take part in Internet-mediated research and ensure a more representative sample. Secondly, as

some of the atheist participants reported discomfort with the survey content, they should be given a choice to skip religiosity-related items as well as be presented with a short explanation why such questions are asked.

The second methodological issue concerns measurement difficulties. The perceived threat questionnaire designed for Study 1 was perhaps the most problematic in this regard. Here, the aim was to create an indirect method of assessment for the threat types derived from the sociofunctional approach to prejudice. However, factor analysis revealed that the threat to trust subscale also contains items regarding morality. Such a result could mean two things: that the perceived threat scales are not independent (which in turn would render verifying the threat-emotion profiles very difficult - at least while attempting indirect measurement) or that threatening trust inherently implies a moral threat. These possibilities need to be investigated further, so a future replication of Study 1 is in order, using both direct and indirect methods of threat assessment. This is a necessary next step in testing the threat-emotion profile of anti-atheist prejudice. Another problem was reported by participants themselves. Some of them expressed an opinion that it is impossible to evaluate the whole group (as there is a lot of intragroup diversity) and felt that it is meaningless to try and do so, which might have influenced their answers. To mitigate that, future studies should include a longer introduction in which participants are asked to, for example, visualize the average member of the target group and answer the following questions with such an image in mind.

Lastly, as has been already brought up in the discussion of both Study 1 and 3, collected data was cross-sectional. This means that uncovered mediation effects have to be at the very least interpreted with caution (Fairchild & McDaniel, 2017). Of course, they offer a promising explanation of the phenomenon of interest and are in line with predictions. Nevertheless, the role that meta-ethical beliefs and distrust play in anti-atheist prejudice

needs to be further investigated through studies that employ designs better suited for mediation analyses and examining mechanisms that underlie anti-atheism.

Future Directions and Open Questions

As much as the presented findings answer some of the research questions, at the same time they consequently lead to posing new ones. This statement is particularly relevant to the notion of meta-ethical commitments, newly introduced to the theoretical framework of anti-atheist prejudice. Beliefs on origins of morality are but a modest example of a broad range of meta-ethical beliefs (such as beliefs on objective vs. subjective nature of moral values or inherent vs. acquired character of moral intuition/knowledge, etc.). Given this variety, a question naturally arises: are any other meta-ethical beliefs beyond beliefs on the origins of morality linked to anti-atheist prejudice, and if so - how?

However, before moving on to further investigations, it is indispensable to refine the instrument developed for the purpose of the dissertation - the Meta-Ethical Beliefs Questionnaire. I intend to improve it in a twofold way: by enabling a more comprehensive assessment of meta-ethical beliefs (beyond commitments regarding origins of morality) and by adapting the pretested and validated questionnaire into English (so far only a Polish version is available), so it is easily accessible for researchers worldwide. Enhancing the MBQ will allow examining the role of meta-ethical beliefs in anti-atheist prejudice in more detail and might help answer the question raised above.

As the present dissertation was focused on religion-based prejudice in Poland, the next step would be to use the revisited version of MBQ to replicate the results of the dissertation's final study and to expand on them by attempting a cross-cultural comparison. Here, I would aim at comparing anti-(a)theist attitudes in countries of different religious composition and different level of church-state separation - for example Poland and Germany or the Czech Republic. This would allow investigating whether there are any differences in

the level of anti-(a)theist prejudice depending on the status of the discriminated group (i.e., majority vs. minority) and further validating the role of meta-ethical beliefs on origins of morality in anti-atheism.

Another idea to be considered here would be to include more than three target groups (i.e., in addition to Christians, Muslims, and atheists). Having in mind that the results of Study 1 and 3 contradicted the religious prosociality hypothesis (i.e., Muslims were met with a less positive response than atheists, despite being believers themselves), it would be interesting to investigate whether the same effect would emerge if a newly introduced religious target group (e.g., Buddhists or Jews) is not associated with fear and hostility to such a great extent as Muslims are. At the same time, it is quite intriguing that hardly any significant correlates of attitude towards Muslims were found. Future studies should look into this finding in more detail and explore whether fear could be its driving force.

Furthermore, there is room for improvement with regard to the method of prejudice measurement (explicit vs. implicit). I propose to move beyond the strictly survey-based approach by incorporating both neurophysiological and neuroimaging elements into the study design, which has not yet been done in this line of research and would therefore be a novel contribution to the literature on the subject. To achieve this aim, I intend to present the participants with vignettes describing individuals of different worldviews (one of which would be an atheist/theist one) and then indirectly assess their attitude towards them (for example by asking whether they would feel comfortable if this person's children would come over to play with participant's children). This procedure would be accompanied by facial electromyography, electrodermal activity measurement, and photoplethysmography (as utilized in prejudice research by, e.g., Morrison, Trinder, & Morrison, 2019) to estimate implicit religion-based prejudice. Apart from that, religiosity dimensions as well as threat perceptions, meta-ethical beliefs, and attitude towards target groups would be assessed in a

survey format. This kind of a study design could help with the difficulties stemming from purely explicit measurement of such a sensitive research topic that prejudice is, especially religion-based one.

Of course, this is by no means an exhaustive list of research ideas, but can certainly serve as a signpost for the future studies.

Concluding Remarks

While the presented studies merely touch the surface of the mechanisms underlying anti-atheist prejudice, the findings are nevertheless promising and encourage further pursuit of this research avenue. It is important to underline that this is not to offer an alternative approach, but rather a complementary one, building upon already established theoretical lens through which anti-atheism has been successfully analyzed until now.

Though these findings certainly help orient oneself in the intricacies of anti-atheism, the answer to the main question remains ever-elusive - is it possible to mitigate the conflicts, given the steadily increasing religious heterogeneity? After all, modern societies are constantly changing and becoming more diverse than ever. Attempting to provide a simple answer to this question would be bordering on arrogance. What can be done instead is acquiring a better understanding of religion-based prejudice dynamics to be able to alleviate the repercussions through interventions and raising social awareness. I do hope that the present dissertation has made a significant contribution in that regard.

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Appendices

Appendix A

Responses to the open-ended question of the pilot study

	IS IT WORTH BECOMING AN ATHEIST? WHY? WHY NOT?
YES (*n*=25)	It is worth being an atheist because in short human life it is a shame to waste time and resources on vain and idolatrous activities. From prehistory, religion served as a means of subjugating people, solidifying the social hierarchy, shaping the worldview, limiting human thought, and benefitting from "ruling souls". Ironically, the Christian culture's metaphor of a "good shepherd" wonderfully describes cult activities - they lead and herd the flocks, and fleece them for profit, and, as they are aptly called, "domini canes" bite and bark at dissenters. Even if clergymen are not cynics, who deliberately use people, they strengthen an archaic and theocentric view of our world, which needs to be taken care of now and for future's sake rather than dreaming of life after life. I see the positive impact of religious organizations in the field of social assistance and charity, activation and support for the elderly, and preserving local culture. As a humanist, I wish I could say that it is possible to maintain social and legal order among citizens without religion, unfortunately I am afraid that only the "wrath of God" prevents some people from wicked acts.
	It is worth it.
	Only then can one have peace.
	It is worth it. It opens one's eyes to many things.
	One can get to know other worldviews, learn to respect.
	It is worth it because then one has a broader worldview. One is not limited by any frameworks.
	Of course. Rationalism and science help know and understand the world better.
	1) Because without god life has meaning. If there is an afterlife, what motivation do I have to fight for a better life on Earth? Why should I worry about someone else's suffering if, after all, as long as that person is a good human, they will go to heaven anyway and what happened to them here will be, in perspective, like a bad

	day, and not even that, because even the longest earthly life would be nothing from the perspective of eternity. 2) If there actually would be a “god”, for him not to be absolutely morally repulsive, he would have to be something like a super intelligent alien whose school science project was forgotten somewhere at the bottom of a wardrobe. And it seems to me that, for numerous reasons, this would not really qualify as a god :). 3) And personally, I simply do not know how one can look at the history of the universe, how science progresses and where we began, where we are now and the future possibilities, and truly, sincerely, and consciously believe in god.
	Yes, because we do not have to fool ourselves with false and meaningless dogmas.
	It is worth it - at home one can believe in anything, but in life it is science that reigns, not to mention how religion lies, manipulates, and hides uncomfortable facts for itself.
	Yes, because it allows living life to the fullest, in a real world, without resorting to fables, myths, and legends.
	It can spare the disappointments after death, when it turns out that there is no paradise. It teaches tolerance towards what is happening in the world without demanding changes from god’s side, it can shape one's own responsibility and agency, reflectiveness, it allows searching for one's own principles without God, but with preserving morality.
	Because religion contradicts science, and science has irrefutable evidence that the bible is a human invention.
	More money in the pocket in old age.
	It is worth being an atheist to simplify the world for oneself.
	Yes. Constructs that are being instilled in us for years by the Catholic theology, church, parents, environment in which we live are outdated and hinder human intellectual development. Rational thinking is the highest value in today's world, especially when facing dramatic conflicts in the world. It is worth liberating oneself from the faith in the supernatural in order to see what we have next to us, daily and simple things, without counting on heaven or hell after death, after which there is, in fact, nothing. Second issue is anticlericalism, which, in my opinion, should be a value for us nowadays, and criticism of current moral systems will be for the best. Discussion and rational argumentation are disappearing, because a

	worldview discourse, when clashing with substantive arguments, is basically impossible. Let us criticize and share our remarks, church and religion do not have a monopoly on morality, which does not come from them, but from human nature.
	It is worth it. It is the way to self-awareness. Freedom and full devotion to science and morality.
	Yes, because it is worth not fooling oneself and looking for real explanations of how the world and human mind work.
	I think it is worth it because it is connected with a greater sense of responsibility for one's own actions and with being good due to one's OWN morality and the good of humanity, and not for religious reasons. Personally, as an atheist I am proud of my choice, because it was conscious and independent. Parents did not baptize me to be an atheist when I was one year old. I chose [it] myself after long consideration.
	Freedom from fear of imaginary evil and imaginary consequences aka hell.
	It is worth being one, because it opens one's eyes to the world and allows comprehending it in an orderly and logical way.
	Yes.
	It is worth it. An atheist has a mind more open to the world and its unexplained mysteries.
	Yes, of course. 1) atheism creates a certain space of permissiveness which means that issues unregulated by commonly binding social norms are open, and instead of applying solutions to those issues, proposed by a given religious community, in one's life, which are not necessarily the best for a particular individual, one can show inventiveness and come up with one's own; 2) religious faith introduces imprecise concepts into our life, they come from primitive times in which the level of knowledge was much lower, by that it also introduces beliefs that we do not have a significant influence on some issues into our life; if it does not censor certain scientific discoveries (because it does not have the ability to do so anymore), it can surely influence our understanding of some implications of those discoveries by censoring our knowledge concerning possibilities of changing one's life; generally, religion discourages us from acting and encourages to prayer and contemplation; 3) religion takes away the joy of life - it makes one think about one's own death (as

	exemplified by the Latin maxim “memento mori” - “remember death”, coming from times in which death really lurked everywhere, which was caused by the low level of social development as well as an absolutist system) when death is still far away, which does not allow thinking about those stages of life which are still ahead of us; atheism frees us from this fear of death, by which it brings optimism into our lives; 4) it is deeply dishonest to oneself to believe in something because it is convenient for us to believe in that, because it drowns out our biological instinct of fight for survival, and not because it is the truth; 5) frequently, when people invoke God and religion, it is de facto about power and money; religion, exactly due to its conceptual inaccuracy, has a tendency towards hypocrisy, whereas atheism is more sincere and straightforward, more eager to talk about reality as it is and not as the speaker would like to see it.
	Atheism is simply logical. If someone wants to live in a beautiful illusion, then for them it is not worth it. For people who value truth, atheism is the only option.
NO (*n*=33)	It is worth searching for the truth, if it leads through “atheism”, it is not a problem as long as it does not stop at this “atheism”.
	No, because what is the meaning of our life then?
	No. Pascal's wager is the answer why not.
	Atheists are realists viewing the world matter-of-factly, trying to explain everything using science. Religion is something more so it passes atheists by. Life without God is empty, it is easier to lose morality. I think it is not worth being an atheist because we deprive ourselves of hope, and we are worse off.
	From my point of view, no, because, as a believer, I think that God is the meaning and cause of existence. It is difficult to talk about “becoming an atheist” in the same way as about becoming a doctor or a police officer, and about it being “worth it”, because I think that the conviction that God does not exist often results from difficult, bitter experiences, from betrayed trust (not only in God as such, but also, maybe even more often, in religious institutions and followers of a particular religion), maybe also from a belief that faith is irrational. In any case, to me it seems that it is most often based on negative premises and experiences. However, I think that it is not worth it to be stuck in a formal, institutionalized religiousness against one’s better judgment, when having a strong conviction that God does not exist - that is why I understand and respect a decision about apostasy.

	In the name of what, I ask? For human in itself who will sooner or later die, and nothing will be left of them?
	No.
	No, it is easier to live, believing that our existence has meaning.
	No, because faith in God gives life meaning. It makes us learn to live the love.
	No, because one will lose faith that there can be something after death, and life will become meaningless.
	No. Faith gives solace, sense of security, peace, support…
	No. Religion is connected with rules, which lead us to a better life. Certain values, which make us better, are followed.
	Faith helps in daily life. It gives hope.
	I think that it is not worth it. An actor said that atheism is like being locked in an empty room with no windows for life. Atheism is good for individuals, but not for masses. Most people have a hidden need of belief in a higher entity. Belief in God gives strength and hope.
	No, because every human needs a superior person to explain some phenomena.
	It is not worth becoming an atheist because an atheist will not be able to truly love due to the fact that she/he does not respect God, who is love. Apart from that, a believer has faith that she/he will receive eternal life. Looking at it even through atheist's eyes, I would rather believe because I do not lose anything, and I can gain a lot. I do not feel restricted by my faith, as many people think, because the commandments are not imperatives or prohibitions, but life signposts. Being a believer, I feel free. If I became an atheist, my life would not have meaning, I would feel emptiness and sadness. I cannot imagine my life without God.
	It is not worth becoming one. An idiotic question. It is about allowing the thought that the bible was written by a group of drunk and stoned people. Then, everything you believe in loses meaning.
	Is it worth it? Certainly not. The feeling that someone is watching over us, and that everything that happens to us has some meaning, that we find consolation during difficult moments is something incredibly important. I cannot even imagine being an atheist. One can believe in a deity of any kind, but existence without any god seems to be sad and terrifying to me, and in my case even impossible.
	Some of the atheists base their views on the results of exact sciences, thinking that

they are able to explain the cause of the world coming into being. Unfortunately, as the name itself indicates, these are merely "exact" sciences, which do not have such competences. Philosophy and theology pose general questions, which concern the causes of the universe, and both those fields point at God. Except, of course, for the philosophies that developed entirely with common sense, whether due to incompetence of given "philosophers" or hatred towards Catholicism. Thus, only God is the answer to the first causes. Atheists, on the other hand, are in this sad position of not having this basis which is God himself, so they also cannot derive any stable moral laws, thus, they do not even know how to live. And, as it is known from life, it is easier to walk on compacted soil than on quicksand.

No! It is like falling into a black hole from which there is no way out. Inviting emptiness to life.

It is not worth becoming an atheist. God speaks to us every day, one must open oneself up to Him and His grace. He exists and wants to show You how much He loves You. You have to let Him do it.

No. Atheism is nonsense - how can one not believe in something which one thinks does not exist?

Christianity is the only true faith, so why should people live in a lie? (this is not trolling!) Besides, I heard from many atheists that they envy believers some purposefulness.

No, because one deprives oneself of hope at one's own request.

It is not worth it - because one will not fulfil the most deeply hidden desire and, at the same time, the purpose for which one was created - knowing and being close to God. In short: one will go to hell.

It is not worth it, because if there is no God, then there is no good or evil. If people made up what is moral on their own, the world would have ended a long time ago. One can do whatever one wants. Kill, steal, rape or live peacefully, all without consequences. What is more, nothing defines the value of a human being then. There is no salvation. Our life, our deeds do not have any meaning then. This is just a perspective of a deep belief in atheism. And from a Christian's perspective, eternal damnation is the consequence of rejecting Christ.

"If you do not believe in God and God does not exist - you do not lose anything.

If you do not believe in God and God exists - you lose everything.

	If you believe in God and God does not exist - nothing happens. If you believe in God and God exists - you gain everything.”
	No. It gives nothing more than some conviction, which, if it is wrong, can cause some harm. On that basis, believers are in a little better position - if their conviction is wrong, practically nothing will change. A bit like with the “better safe than sorry” rule. Of course, thinking like that may lead to other problems, but that is a different question.
	No, because it is a life without sense, sad, without hope.
	No. Believers live longer.
	No.
	No. Religion is also a tradition that gives awareness.
	It is not worth it, it is easier to live when you are sure that someone is watching over you or has a grand plan in which everything makes sense.
	It is not worth it! Being in a relationship with God, who is Love, is the source of happiness!
?	One can believe (or not) in anything one wants to.
(*n*=31)	It is neither worth nor not worth becoming an atheist. Because, on the one hand, an atheist also believes in something, but not necessarily in God.
	It cannot be described in that way. There is no “worth it” or “not worth it” here. Either one is an atheist or one is not. Either one believes in some higher power/gods/God or one does not. A matter of individual beliefs.
	Everyone should live in accordance with one's beliefs, no one can be persuaded to be an atheist or a believer.
	A strangely phrased question. It suggests that one becomes an atheist by choice. However, my impression is that it does not work that way. Atheism has now become a kind of a fashion.
	There is no such thing as becoming an atheist - either one believes in God or not. The question whether it is worth being [an atheist] or not also makes no sense because one must not categorize people. I am an atheist, but family values are deeply ingrained in me. In everyday life, I am guided by being good to others. There are also “practicing believers”, who on a daily basis denigrate others, lie, cheat, con - they simply are bad people. Regardless of whether one is a believer or an atheist, one should be a good person. Both options give us a choice - either you

	will be a good or a bad person. It is up to us to choose. And does becoming an atheist come with any benefits? Maybe one thing comes to my mind - not going to church and listening to, often, nonsense. I do not see any drawbacks - because IF God exists, he will judge “believers” and “atheists” the same way.
	Becoming an atheist is not joining a club or choosing a school. This is not a notion that should be considered in the context of “whether it is worth becoming one”. It is worth searching for, it is worth considering. It is worth undermining things which do not quite suit us. It is worth posing questions to oneself and looking for answers. One does not become an atheist all of a sudden. This is due to a certain process of transformation. Is it worth undergoing this process? Yes and no. Surely we will not become better or worse due to the very fact of changing “faith”. (Although I see from observations that atheists care less about “winning someone over to their side” by force, they do so in a less insistent manner). It is certainly hard to be an atheist in Poland.
	I do not know whether the phrase “worth it” can be used. In my opinion, an atheist is no different from a believer (except for the attached label). Under the layer of faith there can be a bad person and vice versa. We should accept each other and not give unnecessary speeches on faith to others.
	I am [an atheist], so it is difficult to say whether it is worth becoming [an atheist], either one is [an atheist] or one is not.
	If someone thinks rationally, they are unlikely to avoid it anyway.
	Is it worth it? I have no idea. I think it depends on each individual, which path they will choose, and it should not be considered in terms of “worth it” or “not worth it”.
	A very strange question. One does not become an atheist because it is worth becoming one. If someone becomes a believer because it is worth it, then something is not right either. One can respect religion and appreciate its significance while being an atheist. One can also be a good person, even a better one than many believers. This instrument's design puzzles me. E.g., what is the aim of the question on whether an atheist has a soul? One might as well ask whether a human has a soul. According to an atheist, no one has a soul, including an atheist. On the other hand, a believer should think that everyone has a soul, including an atheist. In a sense, an atheist can be very “spiritual”. Of course, in a somewhat

	different way than a believer. But is it very different? In Schmitt's book "A woman in a mirror" it is very nicely shown how thin the line between deep mysticism and a completely pagan experience is... some kind of unity with something intangible - one does not need any drugs for that ;). Also, for example, putting it so shallowly that we are "only" animals - but maybe "the" animals [i.e., we should take pride in being animals]? From a religious person's perspective, atheism is something terrible. One can understand this approach, but one has to be careful not to go too far. An atheist by no means has to be narrow-minded ;).
	Yes and no. Yes, because of the clarity and simplicity of the perception of the world, no, because due to that one can lose a certain value system and head towards anarchism.
	An off-the-wall question. This is not a choice, but a state of consciousness.
	It is worth getting to know all paths and choosing the best one for oneself. After getting to know them, the best one might turn out to be… none, one's own, atheism. Living according to moral and one's own principles and not those imposed by someone.
	I do not know, I am a believer. I cannot say if it is worth it if I have never experienced it.
	In my opinion, this question makes no sense. One cannot compare Atheism to buying bread rolls in a store (is it worth buying a yesterday's bread roll?), it is a matter of perceiving the world, which is being shaped simultaneously with human development, and I think that no Atheist considers this decision in terms of its profitability. Disbelief in god often goes hand in hand with belief in science and with a very bad image of the church and religion in today's world. The church's hypocrisy alienates people from itself [the church] and from god. Unfortunately, churches wallowing in riches cannot represent the Holy Scripture, where it is clearly written to give one's last shirt to the poor.
	The question is phrased in such a way as if it concerned becoming a musician or a secretary… In my opinion, a person becomes an atheist or a believer of a particular religion in a process of spiritual development and not under the influence of a decision that, e.g., starting today I will be an atheist. A meaningless question.
	This is a strange question. I do not think that one becomes an atheist because it is "worth it"…

	Yes, because then one does not give a hang about any commandments, no, because then one is emotionally drained.
	This is probably not a matter of “becoming”, so a decision or a declaration, but a fact. Either one is an atheist or one is not.
	Atheists approach events and morality more from a point of view of one's own responsibility. They do not look for prohibitions and imperatives imposed by external powers. They are responsible for their actions before themselves. However, due to that it is often more difficult to attain peace because one cannot refer to someone superior who determined that things have to be that way. E.g., when it comes to death or diseases.
	There is no unambiguous answer to that question. However, it is worth being aware of other religions and cultures, and only after getting to know them, decide what one wants to believe, and whether it is needed as a complement to one’s worldview.
	Some people become atheists (if it is not too big a word) to be able to look at religion from a certain distance. Sometimes they might feel locked in a cage of moral imperatives of sorts, and they themselves might not quite feel that they [the imperatives] make sense. However, it is usually due to a person's religious immaturity. So maybe sometimes breaking away from it to be able to look at it differently is not the worst idea. However, a religiously mature person will not have a problem with the above because they will identify with the said imperatives or as in the Christian faith - the Decalogue!
	I think that one should live in accordance with one's beliefs and not “become” an atheist because it is worth it. People who are atheists do not need religion, it seems illogical to them, but they do not negate other people's needs to believe. One certainly needs to be a bit stronger to be an atheist because faith often gives people strength, helps find some motivation and hope in difficult moments. Atheists rely on themselves and their own thoughts, not on prayer and God.
	I do not know, I cannot order anyone to become an atheist.
	It is not worth becoming an atheist, being an atheist has no value, I am an atheist because I do not believe in God, church, I do not believe in something that is proven just as much as ufo or big foot. Being an atheist brings only one benefit, an open mind. Religious people often do not believe in science, they reject views

	other than their own without considering them in any way, they limit themselves to their only ideology and do not allow any other, they do not believe medicine, biology, psychology, they do not believe in creation of the world through an explosion [i.e., Big Bang] or in any other way. For them, it was a snap of a finger of some unearthly being. I think that maybe God exists, maybe not. But will this fact help me in material life? It is like a study with a cat, as long as the cat is in the box, we do not know whether it is alive or dead, and similarly as long as we are alive we do not know whether God exists or not. Even if belief in God makes sense, many people find peace that way, are not afraid of death, BELIEF IN CHURCH does not make any sense, if someone believes in God, they should have him in heart, not "wear him" to a church visit and give alms to the church hyenas (not generalizing). I want to underline that the only thing that atheism gives us is an open, clear mind.
	One cannot "become an atheist". One cannot, for example, say that "starting tomorrow, I will become an atheist", it is very difficult to seize the moment in which a person becomes one. One can only determine a moment of realization of being an atheist. I used to go to church for several years of my life, but today I cannot say if I really believed in God this whole time. It is very likely that I did not. It is equally difficult to say whether it is worth being an atheist. Either one is one [an atheist] or one is not, it is not possible to change beliefs by force, it all depends on what the person feels.
	Not offending the survey's author: This is a question like "Is it worth buying this washing machine or not?". I do not think that religion is a matter of choice. Faith either is or is not.
	It is hard to say whether it is worth it or not, it all depends on the person.
	It is not worth it to label oneself in any area.

Appendix B

Vignettes - Study 1

Vignette for the Christian target group

Christians are the largest religious group in the world - accounting for 32% of the population. Their faith is based on the teaching of Jesus Christ, who is considered the Son of God.

Vignette for the Muslim target group

Muslims, followers of Islam, are the second largest religious group in the world - they constitute 23% of the population. Their faith is centered around five principles - faith in Allah, prayer five times a day, fasting during Ramadan, almsgiving, and pilgrimage to the holy city of Mecca.

Appendix C

Threat questionnaire - Study 1

It would bother me if an atheist was my child's teacher.

Atheists should not donate blood.

Atheists have different values than the majority of the society.*

Atheists are a threat to others' safety.

Atheists are able to return the favors done for them.

Atheists should not pursue professions of public trust.

Others' health is threatened by atheists.

Atheists try to change people around them so they fit their ideals better.

Atheists could go as far as to use physical violence towards others.

Atheists usually return the favors.

Atheists would not hesitate to cheat to achieve their aim.

The way atheists act could serve as an example for others.

Atheists significantly contribute to their local community.

Atheists care about morality.

Atheists are trustworthy.

Atheists respect others' religious freedom.

I would vote for an atheist if she/he was a candidate for the council of the city I live in.

Atheists are tolerant.

Atheists can be counted on.

Generally speaking, atheists' behavior is moral.

I would mind having atheists as neighbors.

Atheists are self-centered.

Atheists behave disrespectfully towards others.

Atheists are more like hedonists.

If it were up to me, I would not entrust atheists with any responsible task.

Atheists are calm and peaceful.

Atheists live their own lives and try not to bother others.

*** removed for atheist/Christian scales due to lower reliability**

Appendix D

Subscales of the perceived threat questionnaire - Study 1

Table 39

Subscales of the Perceived Threat Questionnaire

Perceived threat to safety	Perceived threat of disrespect	Perceived threat to trust
Atheists should not donate blood. $_{A}$	Atheists try to change people around them so they fit their ideals better.	Atheists usually return the favors.*
Atheists are a threat to others' safety. $_{A, C, M}$	Atheists respect others' religious freedom.*	Atheists care about morality.*
Others' health is threatened by atheists. $_{A, C, M}$	Atheists behave disrespectfully towards others.	Atheists are trustworthy.*
	Atheists live their own lives and try not to bother others.*	Atheists can be counted on.*
		Generally speaking, atheists' behavior is moral.*

Note. *X should not donate blood* lowered the reliability of the perceived threat to safety scale in the Christian and Muslim conditions, and therefore was not included in the calculations for these target groups (as indicated by the subscripts, $_{A, C, M}$).

*reversed

Appendix E

Factor analysis of the perceived threat questionnaire - Study 1

For the purpose of the first study, a 27-item questionnaire of perceived threat was designed. The sociofunctional approach to prejudice served as the theoretical basis, and in the process of development I focused on including items capturing three types of perceived threat: threat to safety, trust, and moral contamination. Nevertheless, an exploratory factor analysis on the atheist version of the questionnaire was performed to identify the underlying structure. Not all of the items were utilized in this procedure as not all of them measured perceived threat but rather an overall attitude towards the target groups or were phrased ambiguously. 14 items were excluded in the initial phase (*It would bother me if an atheist was my child's teacher*, *Atheists have different values than the majority of the society*, *Atheists are able to return the favors done for them*, *Atheists should not pursue professions of public trust*, *Atheists could go as far as to use physical violence towards others*, *Atheists would not hesitate to cheat to achieve their aim*, *The way atheists act could serve as an example for others*, *Atheists significantly contribute to their local community*, *I would vote for an atheist if she/he was a candidate for the council of the city I live in*, *I would mind having atheists as neighbors*, *Atheists are self-centered*, *Atheists are more like hedonists*, *If it were up to me, I would not entrust atheists with any responsible task*, and *Atheists are calm and peaceful*). Limiting the number of items was also motivated by the relatively small sample size of 70.

No item followed a normal distribution, and for that reason principal axis factoring was the chosen method of extraction. I expected factors to be correlated, and hence, direct oblimin rotation was used. Kaiser-Meyer-Olkin measure of sampling adequacy was marginally below the satisfactory value of .80 (.798), and the result of Bartlett's sphericity

test was significant, $\chi^2(78) = 356.94$, $p < .001$, which pointed towards item intercorrelations. Already the first extraction resulted in the predicted number of factors - three. One item had to be removed due to a double factor loading (*Atheists are tolerant*). Subsequent extraction revealed that no item had a factor loading lower than .40 or loaded on two or more factors. Table 40 presents the final factor structure of the questionnaire.

Table 40

Final Factor Structure of the Perceived Threat Questionnaire

Item	F1	F2	F3	h^2	*M*	*SD*
Atheists usually return the favors.	.77			.54	3.61	0.75
Atheists care about morality.	.76			.58	3.56	0.91
Atheists can be counted on.	.67			.48	3.70	0.79
Generally speaking, atheists' behavior is moral.	.67			.56	3.86	0.80
Atheists are trustworthy.	.51			.39	3.81	0.87
Atheists should not donate blood.		.78		.57	1.16	0.56
Others' health is threatened by atheists.		.61		.45	1.33	0.72
Atheists are a threat to others' safety.		.57		.51	1.41	0.71
Atheists respect others' religious freedom.			.87	.75	3.60	0.91
Atheists behave disrespectfully towards others.			-.69	.45	2.37	1.02
Atheists try to change people around them so they fit their ideals better.			-.67	.50	2.59	1.14
Atheists live their own lives and try not to bother others.			.49	.35	3.87	0.87
% of variance explained	34.64	9.25	7.06			

Note. F1 - Factor 1, F2 - Factor 2, F3 - Factor 3, h^2 - communality.

The extracted factors closely match the structure intended in the development stage. Factor 1 captures *perceived threat to trust*, though it also includes some of the items on morality, which were originally meant to belong to the perceived threat of moral contamination. Factor 2 was supposed to assess perceived threat of moral contamination, and it does so, though it is more focused on potential disrespect to one's values. For that reason, this subscale was named *perceived threat of disrespect*. Finally, the third factor is a measure of *perceived threat to safety*.

As for the Christian and Muslim versions of the questionnaire, the subscales were calculated according to the results of the above factor analysis. Reliability was checked, and in the case of perceived threat to safety scale one item was removed (*X should not donate blood*) for these two target groups as it lowered the Cronbach's α coefficient.

Appendix F

PANAS-X - the modified version used in Study 1

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then write the appropriate number in the space next to that word. Indicate to what extent you have felt this way towards [atheists/Muslims/Christians]. Use the following scale to record your answers:

1 - very slightly or not at all, 2 - a little, 3 - moderately, 4 - quite a bit, 5 - extremely

alert	jittery	disgusted
irritable	enthusiastic	scornful
strong	ashamed	angry
afraid	determined	unfriendly
inspired	scared	loathing
upset	interested	surprised
attentive	distressed	amazed
guilty	shaky	feeling disgusted
active	frightened	sickened
nervous	disgusted with self	offended
excited	angry at self	feeling aversion
hostile	blameworthy	feeling unpleasant
proud	dissatisfied with self	

Appendix G

The extended version of the Views of God scale used in Study 1

forgiving	harsh
loving	compassionate
angry	charitable
jealous	punishing
suffering	altruistic
unconditional	comforting
gentle	purifying
fearsome	peaceful
noble	sympathetic
self-sacrificing	consoling
vengeful	demanding
kind	impulsive
generous	fickle
selfless	overwhelming
terrifying	dominating

Appendix H

Descriptive statistics - Study 1

Table 41

Descriptive Statistics of General Attitude, Perceived Threat, and Elicited Emotions in the Religious Group (Atheist Condition)

Scale	*M*	*Me*	*SD*	Min	Max	*W*	*p*
General attitude	2.47	2.46	0.39	1.88	3.27	.97	.860
Perceived threat to safety	1.51	1.33	0.67	1.00	3.33	.78	.002
Perceived threat of disrespect	2.70	2.75	0.47	2.00	3.50	.94	.395
Perceived threat to trust	2.63	2.60	0.60	1.60	4.20	.88	.055
Positive affect	2.26	2.40	0.80	1.00	3.80	.97	.823
Negative affect	1.47	1.20	0.71	1.00	3.60	.67	< .001
Fear	1.39	1.17	0.68	1.00	3.33	.62	< .001
Guilt	1.30	1.00	0.78	1.00	4.00	.44	< .001
Anger	1.33	1.00	0.64	1.00	3.33	.61	< .001
Disgust	1.38	1.00	0.78	1.00	4.00	.54	< .001

Note. *W* - result of the Shapiro-Wilk's test for normality.

Table 42

Descriptive Statistics of General Attitude, Perceived Threat, and Elicited Emotions in the Religious Group (Muslim Condition)

Scale	*M*	*Me*	*SD*	Min	Max	*W*	*p*
General attitude	3.26	3.46	0.53	2.19	3.85	.89	.108
Perceived threat to safety	3.38	3.25	0.88	2.00	5.00	.92	.296
Perceived threat of disrespect	3.77	3.88	0.62	2.50	4.50	.88	.100
Perceived threat to trust	3.12	3.10	0.49	2.40	3.80	.93	.418
Positive affect	2.32	2.25	0.59	1.20	3.20	.95	.577
Negative affect	1.93	1.90	0.56	1.00	3.10	.95	.594
Fear	1.92	1.75	0.66	1.00	3.17	.91	.191
Guilt	1.35	1.17	0.55	1.00	2.83	.68	.001
Anger	2.03	2.00	0.76	1.00	3.33	.95	.568
Disgust	1.64	1.00	1.05	1.00	4.33	.69	.001

Note. *W* - result of the Shapiro-Wilk's test for normality.

Table 43

Descriptive Statistics of General Attitude, Perceived Threat, and Elicited Emotions in the Religious Group (Christian Condition)

Scale	*M*	*Me*	*SD*	Min	Max	*W*	*p*
General attitude	1.99	1.92	0.49	1.19	3.08	.93	.355
Perceived threat to safety	1.54	1.00	1.03	1.00	4.00	.60	< .001
Perceived threat of disrespect	2.48	2.50	0.77	1.25	4.25	.94	.513
Perceived threat to trust	2.03	2.00	0.55	1.00	3.40	.85	.031
Positive affect	2.71	2.90	0.83	1.20	4.10	.96	.698
Negative affect	1.31	1.00	0.48	1.00	2.50	.71	.001
Fear	1.22	1.00	0.39	1.00	2.33	.64	< .001
Guilt	1.35	1.17	0.42	1.00	2.00	.77	.003
Anger	1.28	1.00	0.57	1.00	3.00	.58	< .001
Disgust	1.13	1.00	0.37	1.00	2.33	.41	< .001

Note. *W* - result of the Shapiro-Wilk's test for normality.

Table 44

Descriptive Statistics of Religiosity-Related Concepts in the Religious Group

Scale	*M*	*Me*	*SD*	Min	Max	*W*	*p*
Extrinsic religiosity	2.41	2.36	0.69	1.18	3.91	.96	.200
Intrinsic religiosity	3.81	3.67	0.50	3.11	4.78	.93	.018
Quest religiosity	3.13	3.13	0.62	1.92	4.67	.98	.581
Orthodoxy	4.10	4.00	0.84	2.25	5.88	.98	.658
Second naïveté	4.99	5.00	0.80	3.29	6.29	.97	.264
Relativism	3.79	3.75	1.01	2.00	5.88	.98	.629
External critique	2.49	2.06	1.29	1.00	5.63	.86	< .001
Harm	4.63	4.67	0.73	3.33	5.83	.95	.060
Fairness	4.40	4.33	0.77	3.00	6.00	.97	.348
Ingroup/loyalty	3.94	4.00	0.88	1.33	5.83	.92	.006
Authority	3.76	3.75	0.87	1.17	5.50	.95	.049
Purity	4.35	4.50	0.99	1.83	6.00	.97	.279
Progressivism	0.50	0.38	0.84	-0.47	3.97	.79	< .001
Benevolent image of God	5.87	6.21	1.12	1.59	7.00	.85	< .001
Malevolent image of God	3.29	3.46	1.06	1.33	5.92	.96	.173
Religious fundamentalism	4.33	4.35	1.12	2.10	6.75	.97	.359

Note. W - result of the Shapiro-Wilk's test for normality.

Table 45

Descriptive Statistics of General Attitude, Perceived Threat, and Elicited Emotions in the Non-Religious Group (Atheist Condition)

Scale	*M*	*Me*	*SD*	Min	Max	*W*	*p*
General attitude	1.99	1.96	0.46	1.12	3.46	.95	.026
Perceived threat to safety	1.24	1.00	0.48	1.00	3.33	.58	< .001
Perceived threat of disrespect	2.28	2.00	0.81	1.00	4.75	.94	.006
Perceived threat to trust	2.20	2.20	0.62	1.00	3.20	.96	.065
Positive affect	2.51	2.40	0.95	1.00	4.60	.96	.082
Negative affect	1.19	1.00	0.42	0.90	3.00	.54	< .001
Fear	1.20	1.00	0.38	0.83	2.67	.64	< .001
Guilt	1.09	1.00	0.26	1.00	2.67	.40	< .001
Anger	1.21	1.00	0.60	1.00	4.00	.41	< .001
Disgust	1.13	1.00	0.42	1.00	3.33	.35	< .001

Note. *W* - result of the Shapiro-Wilk's test for normality.

Table 46

Descriptive Statistics of General Attitude, Perceived Threat, and Elicited Emotions in the Non-Religious Group (Muslim Condition)

Scale	*M*	*Me*	*SD*	Min	Max	*W*	*p*
General attitude	2.96	2.89	0.71	1.56	4.33	.98	.371
Perceived threat to safety	2.91	3.00	1.13	1.00	5.00	.94	.006
Perceived threat of disrespect	3.36	3.50	0.89	1.75	5.00	.95	.020
Perceived threat to trust	2.87	3.00	0.77	1.00	4.40	.98	.405
Positive affect	2.22	2.20	0.77	1.00	5.00	.89	< .001
Negative affect	2.01	1.95	0.90	1.00	5.00	.91	< .001
Fear	2.02	1.83	0.98	1.00	5.00	.90	< .001
Guilt	1.46	1.33	0.67	1.00	5.00	.68	< .001
Anger	2.04	1.67	1.23	1.00	7.33	.81	< .001
Disgust	2.04	1.33	1.34	1.00	9.00	.73	< .001

Note. *W* - result of the Shapiro-Wilk's test for normality.

Table 47

Descriptive Statistics of General Attitude, Perceived Threat, and Elicited Emotions in the Non-Religious Group (Christian Condition)

Scale	*M*	*Me*	*SD*	Min	Max	*W*	*p*
General attitude	2.67	2.69	0.57	1.38	4.42	.99	.838
Perceived threat to safety	2.12	2.00	0.93	1.00	5.00	.91	< .001
Perceived threat of disrespect	3.38	3.50	0.93	1.50	5.00	.96	.042
Perceived threat to trust	2.65	2.60	0.61	1.40	4.40	.98	.183
Positive affect	1.95	1.70	0.81	1.00	3.90	.91	< .001
Negative affect	1.60	1.25	0.74	1.00	3.80	.80	< .001
Fear	1.52	1.25	0.70	1.00	3.67	.76	< .001
Guilt	1.41	1.00	0.69	1.00	3.83	.66	< .001
Anger	1.84	1.33	1.00	1.00	4.67	.82	< .001
Disgust	1.62	1.33	0.87	1.00	5.00	.73	< .001

Note. *W* - result of the Shapiro-Wilk's test for normality.

Table 48

Descriptive Statistics of Religiosity-Related Concepts in the Non-Religious Group

Scale	*M*	*Me*	*SD*	Min	Max	*W*	*p*
Extrinsic religiosity	1.63	1.91	1.20	0.00	3.55	.87	< .001
Intrinsic religiosity	1.30	1.22	1.03	0.00	3.00	.90	< .001
Quest religiosity	2.00	2.42	1.42	0.00	4.58	.86	< .001
Orthodoxy	2.39	2.25	0.91	1.00	6.00	.95	< .001
Second naïveté	3.77	3.57	1.27	1.00	6.43	.98	.031
Relativism	4.92	5.00	0.88	1.75	6.88	.97	.002
External critique	4.52	4.63	1.22	1.13	7.00	.98	.015
Harm	4.88	5.00	0.76	2.00	6.00	.94	< .001
Fairness	4.72	4.83	0.65	2.83	6.00	.98	.029
Ingroup/loyalty	3.39	3.50	0.88	1.00	5.50	.99	.254
Authority	3.14	3.17	0.84	1.00	5.17	.99	.307
Purity	3.11	3.17	0.98	1.17	5.67	.98	.034
Progressivism	1.59	1.58	0.98	-0.75	4.03	.99	.663
Benevolent image of God	4.28	4.59	1.47	1.00	6.82	.95	< .001
Malevolent image of God	3.86	3.92	1.45	1.00	7.00	.98	.032
Religious fundamentalism	2.27	2.05	0.84	1.00	5.45	.92	< .001

Note. W - result of the Shapiro-Wilk's test for normality.

Appendix I

Descriptive statistics - Study 3

Table 49

Descriptive Statistics of Religiosity-Related Concepts in the Believer Group

Scale	*M*	*Me*	*SD*	Min	Max	*W*	*p*
Extrinsic religiosity	2.22	2.18	0.57	0.00	3.55	.97	.027
Intrinsic religiosity	4.04	4.11	0.63	0.00	4.89	.77	< .001
Quest religiosity	2.94	3.00	0.59	0.00	4.42	.92	< .001
Orthodoxy	4.13	4.13	0.94	0.00	6.00	.94	< .001
Second naïveté	5.29	5.43	0.97	0.00	7.00	.89	< .001
Relativism	3.32	3.19	1.00	0.00	6.25	.98	.142
External critique	1.72	1.50	0.77	0.00	5.75	.83	< .001
Benevolent image of God	6.59	6.86	0.65	3.29	7.00	.65	< .001
Malevolent image of God	2.54	2.29	1.19	1.00	7.00	.91	< .001
Divine origins	3.97	4.00	0.73	1.14	5.00	.94	< .001
Evolutionary origins	2.79	3.00	0.92	1.00	5.00	.97	.009
Moral relativism	2.30	2.25	1.11	1.00	5.00	.90	< .001
Distrust towards atheists	2.44	2.43	0.57	1.14	3.86	.98	.172
Attitude towards atheists	3.37	3.00	0.76	1.00	5.00	.85	< .001
Attitude towards Christians	4.29	4.00	0.71	2.00	5.00	.76	< .001
Attitude towards Muslims	2.98	3.00	0.91	1.00	5.00	.89	< .001

Note. *W* - result of the Shapiro-Wilk's test for normality.

Table 50

Descriptive Statistics of Religiosity-Related Concepts in the Non-Believer Group

Scale	*M*	*Me*	*SD*	Min	Max	*W*	*p*
Extrinsic religiosity	0.47	0.00	0.81	0.00	2.91	.65	< .001
Intrinsic religiosity	0.41	0.00	0.72	0.00	3.11	.65	< .001
Quest religiosity	0.68	0.00	1.06	0.00	3.83	.69	< .001
Orthodoxy	0.80	0.00	0.94	0.00	3.00	.79	< .001
Second naïveté	0.95	0.00	1.29	0.00	4.29	.76	< .001
Relativism	2.26	0.44	2.52	0.00	6.75	.77	< .001
External critique	2.63	0.44	2.86	0.00	7.00	.75	< .001
Benevolent image of God	3.22	3.14	1.76	1.00	7.00	.93	< .001
Malevolent image of God	4.89	5.14	1.77	1.00	7.00	.92	< .001
Divine origins	1.24	1.00	0.39	1.00	3.29	.67	< .001
Evolutionary origins	4.26	4.33	0.78	1.33	5.00	.85	< .001
Moral relativism	3.69	4.00	1.03	1.00	5.00	.92	< .001
Distrust towards atheists	1.64	1.57	0.48	1.00	3.29	.90	< .001
Attitude towards atheists	4.33	4.00	0.60	3.00	5.00	.75	< .001
Attitude towards Christians	2.77	2.50	0.99	1.00	5.00	.85	< .001
Attitude towards Muslims	2.81	3.00	1.15	1.00	5.00	.87	< .001

Note. *W* - result of the Shapiro-Wilk's test for normality.

Appendix J

Distrust towards atheists

Atheists usually return the favors.

The way atheists act could serve as an example for others.

Atheists do not care about morality.

Atheists are trustworthy.

Atheists cannot be counted on.

In general, atheists' behavior is moral.

Atheists are dishonest.

Appendix K

Serial mediation models - Study 3

Table 51

Serial Mediation Model (Intrinsic Religiosity - Distrust - Belief in Divine Origins of Morality - Attitude Towards Atheists)

		Consequent									
		M1 (Distrust)			M2 (Divine origins)				Y (Attitude towards atheists)		
Antecedent		Coeff.	*SE*	*p*		Coeff.	*SE*	*p*		Coeff.	*SE*	*p*
X (Religiosity)	a_1	0.08	0.09	.365	a_2	0.58	0.10	< .001	c’	0.10	0.13	.409
M1 (Distrust)		-	-	-	d_{21}	0.26	0.11	.016	b_1	-0.54	0.12	< .001
M2 (Divine o.)		-	-	-		-	-	-	b_2	-0.18	0.11	.106
Constant	i_{M1}	2.12	0.36	< .001	i_{M2}	0.99	0.45	.031	i_Y	4.99	0.52	< .001
		$R^2 = .01$				$R^2 = .31$				$R^2 = .21$		
		$F(1, 102) = 0.83, p = .365$				$F(2, 101) = 22.74, p < .001$				$F(3, 100) = 8.98, p < .001$		

Note. M1 - mediator 1, M2 - mediator 2, $a_{1, 2}$ - effect of the IV on the mediator 1/2, $b_{1, 2}$ - effect of the mediator 1/2 on the DV, *c’* - direct effect of the IV on the DV, d_{21} - effect of the first mediator on the second mediator.

Table 52

Serial Mediation Model (Intrinsic Religiosity - Distrust - Belief in Divine Origins of Morality - Group Preference Index)

		Consequent									
		M1 (Distrust)				M2 (Divine origins)				Y (Group preference index)	
Antecedent		Coeff.	*SE*	*p*		Coeff.	*SE*	*p*		Coeff.	*SE*	*p*
X (Religiosity)	a_1	0.08	0.09	.365	a_2	0.58	0.10	< .001	*c*’	0.01	0.16	.945
M1 (Distrust)		-	-	-	d_{21}	0.26	0.11	.016	b_1	0.68	0.16	< .001
M2 (Divine o.)		-	-	-		-	-	-	b_2	0.53	0.14	< .001
Constant	i_{M1}	2.12	0.36	< .001	i_{M2}	0.99	0.45	.031	i_Y	-2.87	0.67	< .001
		R^2 = .01				R^2 = .31				R^2 = .33		
		$F(1, 102) = 0.83, p = .365$				$F(2, 101) = 22.74, p < .001$				$F(3, 100) = 16.19, p < .001$		

Note. M1 - mediator 1, M2 - mediator 2, $a_{1, 2}$ - effect of the IV on the mediator 1/2, $b_{1, 2}$ - effect of the mediator 1/2 on the DV, *c’* - direct effect of the IV on the DV, d_{21} - effect of the first mediator on the second mediator.

Bremen, 18 March 2020

Declaration

I, Małgorzata Jakubowska, hereby declare that I have completed the present dissertation independently, without any unauthorized aids. The sources I have used have been listed accordingly. All excerpts and citations have been indicated. I have not submitted the thesis or a part thereof for a conferral of a degree elsewhere.

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Małgorzata Jakubowska