Adolescents' implicit attitudes towards people with immigrant background: Differences and correlates

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Abstract

People with an immigrant background can be affected by stereotypes and discrimination. As adolescence is an important developmental stage, this study investigated whether adolescents hold (negative) implicit attitudes towards people with Turkish immigrant background and whether adolescents differ in the extent of attitudes. Additionally, the relevance of perceived discrimination, identification with culture of residence, motivation to act without predjudice, and quality and quantity of contact to people with Turkish immigrant background for the extent of implicit attitudes was analysed. Analyses are based on 244 adolescents (60.7% female, 1.6% diverse; 13.1% with Turkish immigrant background, 16.8% with immigrant background other than Turkish) who participated in an online study. An implicit association test revealed that negative implicit attitudes towards people with a Turkish immigrant background were present among adolescents. Unlike adolescents with a Turkish immigrant background, adolescents without immigrant background and with immigrant background other than Turkish hold negative implicit attitudes on average. For the total sample, it was found that low perceived discrimination was related to negative implicit attitudes. The results are discussed with respect to substantive and methodological aspects. Implications for research and practice are derived.

Keywords Discrimination · Implicit Association Test (IAT) · Implicit attitudes · Immigrant background · Stereotypes

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1 Introduction

Due to global migration movements, today's children and adolescents grow up in a school context characterised by linguistic and cultural heterogeneity (e.g., Jones & Rutland 2018). Despite the prevalence of diversity in classrooms, children and adolescents can be affected by stereotypes and discrimination (Schachner et al., 2018). Negative stereotypes, as the cognitive component of attitudes, can have far-reaching consequences, as is evident in research findings regarding stereotype threat or, for example, in their influence on individuals' behavior towards people with immigrant background (e.g., Glock & Böhmer 2018; Perugini, 2005; Sander et al., 2018; Steele & Aronson, 1995). For this reason, it is important to examine attitudes and better understand which factors are related to them.

Adolescence is an important phase in the transition to adulthood. During this period, adolescents face several central developmental tasks, for example, including the development of one's personal identity (Erikson, 1968). According to social identity theory (Tajfel & Turner, 1986), a person's social identity is determined and shaped by her/his membership in various social groups. Peers, friends, and classmates are crucial socialization agents during adolescence and become more important for the formation of social identities and attitudes towards different groups (e.g., Blakemore & Mills 2014; Bronfenbrenner, 1986).

From a theoretical perspective, numerous factors that can shape attitudes on an affective, cognitive, and behavioral level are discussed (Maio et al., 2019; Zanna & Rempel, 2008). Various studies focusing on other cultural or age groups have shown that people's attitudes are associated with, for example, identification with the culture of residence, motivation to act without predjudice, and contact with people with immigrant background (e.g., Akrami & Ekehammar 2005; Servidio et al., 2021; Stang et al., 2021).

Against this background, we investigated whether adolescents hold negative implicit attitudes towards people with Turkish immigrant background, the largest immigrant group in Germany, and whether there are interindividual differences in attitudes across (i) adolescents without immigrant background, (ii) with immigrant background other than Turkish as well as (iii) with Turkish immigrant background. Based on theoretical considerations and previous empirical findings, constructs such as perceived discrimination, identification with the culture of residence, motivation to act without prejudice, and contact with people with Turkish immigrant background are of particular interest in explaining attitudes. Therefore, this study also investigated whether these variables are related to implicit attitudes.

2 Theoretical background

2.1 Attitudes: Assessment and development

Attitudes can be understood as associations present in memory between an attitude object and the evaluation of that object. Moreover, further distinctions in terms of valence (positive or negative), intensity (strong or weak), and nature (explicit or

implicit) have been proposed (Eagly & Chaiken, 1993; Fazio, 1990; Maio et al., 2019). Explicit attitudes encompass deliberate and conscious evaluations that can be verbalized and expressed in a controlled manner (Rydell & McConnell, 2006). They can be measured via questionnaires (Bohner & Dickel, 2011; Dovidio et al., 2002). In contrast, implicit attitudes are generally considered to be not consciously accessible (Dovidio et al., 2017; Fazio, 2007; Gawronski & Bodenhausen, 2006). Thus, they cannot be measured via questionnaires, which is why implicit measures, such as Evaluative Priming (Fazio et al., 1995), Go/No-Go- Association Task (GNAT; Nosek & Banaji 2001), Affect Misattribution Procedure, (AMP; Payne & Lundberg, 2014) or Implicit Association Tests (IATs; Greenwald et al., 1998), are used to assess implicit attitudes (for an overview see Fazio & Olson 2003; Gawronski & De Houwer, 2014; Znanewitz et al., 2018). In this study, the focus was on implicit attitudes against the background that especially on societal sensitive issues such as stereotypes and prejudices, differences tend to be found in implicit but not in explicit attitudes, as recent research has shown (e.g., Kleen et al., 2019). Furthermore, implicit attitudes are less susceptible to social desirability compared to explicit attitudes and thus less influenceable by the individual respondent (Dovidio et al., 2010).

The IAT measures the association strength via response latencies between cognitive structures (concepts). Thus, exhibiting a certain behavioral response (e.g., pressing a keyboard key) should be easier when two concepts have a high rather than a low association strength (Greenwald et al., 1998; Nosek et al., 2007a). Due to the practicability and validity of the IAT, it has been widely used to assess implicit attitudes in a variety of participants, ranging from children to the elderly, and with respect to psychological topics including gender, politics, and self-esteem (Cai & Wu, 2021; Cvencek et al., 2018; Meyer et al., 2019; Zitelny et al., 2017).

According to the Multicomponent Model of attitudes, attitudes comprise an affective, behavioral, and cognitive component (Eagly & Chaiken, 1995; Rosenberg & Hovland, 1960). The affective component, prejudice, is defined as an emotional response towards an attitude object, and can be positive or negative (Maio et al., 2019). Discrimination, the behavioral component, describes a particular behavior towards an attitude object (Dovidio et al., 2010). The cognitive component is commonly refered to as stereotypes and consists of beliefs and attributed characteristics related to a particular attitude object, e.g., a group and its members (Kite & Whitley, 2016; Zanna & Rempel, 2008). Stereotypes can be activated automatically by the exposure to the attitude object. Thus, they may systematically influence how people perceive and process information about groups and their members and how they behave towards others (e.g., Dovidio et al., 2010).

Attitudes regarding gender and ethnicity begin to develop as early as between the age of two and five (Kite & Whitley, 2016). As cognitive development progresses, stereotypes are no longer based solely on perceptual differences but also on internal, abstract attributes (Baron, 2015; Baron & Banaji, 2006; Cvencek et al., 2011a, b). In their meta-analysis, Raabe and Beelmann (2011) revealed that prejudice, as the evaluative component of attitudes operationalized via explicit measures, increased from early to middle childhood, followed by a gradual decline through adolescence. In contrast, studies that used implicit measures to assess prejudice showed no age-related changes between middle and late childhood. It is assumed that the social

context, such as classmates and peers, become a stronger influence on prejudice as children grow older (Raabe & Beelmann, 2011; Verkuyten & Thijs, 2013). Classmates and close friendships are the groups through which young people define themselves as they strive for a sense of belonging. Therefore, these groups can contribute to adolescents' identity formation and are likely to be internalized as a part of that identity (Knifsend & Juvonen, 2014; Kroger, 2000). In this context, a study by Tanti et al. (2011) primed Australian adolescents aged 12 to 20 years with either their peer or gender identity to examine whether their social identity might differ in accordance with changes in social context. The authors noted that social identity effects in the sense of self-group similarity and self-group typicality were strongest in early (12–13 years) and late (18–20 years) adolescence, compared to mid-adolescence (15–16 years), when peer identity was primed rather than gender identity. Moreover, friends have been found to influence adolescents' attitudes towards people with an immigrant background (van Zalk et al., 2013). The authors examined a large friendship network of adolescents in Sweden, who were 13 years old on average, over a period of three years (van Zalk et al., 2013). Taken together, these findings highlight the important role of peer groups for adolescents' attitudes, which is why they are the focus of this study. Overall, identity development in adolescence occurs via assignment to or comparison with social groups, wherefore attitudes towards the in- and outgroup, such as people with immigrant background, become relevant.

2.2 Attitudes towards people with immigrant background

Due to the long-term consequences attitudes can have, it is important to know the extent and content of attitudes towards people with immigrant background. Previous studies regarding implicit and explicit attitudes in Germany have shown that negative attitudes towards people with immigrant background were present on average for 15-year-old school students from different types of secondary schools and among preservice teachers (e.g., Kessler et al., 2010; Glock & Karbach, 2015). For example, Peña et al. (2021) examined implicit and explicit attitudes towards undocumented Latinx immigrants among Latinx and non-Hispanic white college students in the US. They found more negative attitudes towards undocumented Latinx immigrants among non-Hispanic White participants than among Latinxs on both attitude measures (Peña et al., 2021). Focusing only on explicit attitudes, Asbrock (2010), for example, found that people with immigrant background were classified into a cluster with low warmth and competence based on ratings of university students in Germany. Furthermore, people with immigrant backgrounds' competencies and achievement in mathematics were rated lower on average by ninth graders with and without immigrant background in Germany (Zander et al., 2014). An online survey (Schmidt-Daffy et al., 2016) revealed that both German-origin students and students with immigrant background other than Turkish of around age of 14 years on average consistently assumed that native German students considered Turkish-origin students to be less competent than vice versa. Turkish-origin students, on the other hand, were more likely to have a positive view of native German students and reported that native German students also had a positive view of them. A similar pattern emerged in studies, in which attitudes were measured implicitly. For example, in a study con-

ducted by Stang et al. (2021), in which implicit attitudes were measured using an IAT, negative attitudes towards people with Turkish immigrant background were found to be present among fourth-grade students in Germany without immigrant background. Further, also using an IAT, Steele et al. (2018) reported that South Asian, East Asian, Southeast Asian, and Black children from Canada had an implicit preference for White (over Black) people in early childhood, from age of 7 to 9. Due to numerous findings showing that negative attitudes towards people with immigrant background exist, it is of particular importance to investigate which influencing factors can explain interindividual differences in such attitudes.

2.3 Possible explanations for implicit attitudes through the lens of social psychology theories

2.3.1 Ingroup favouritism and outgroup derogation

One reason why, for example, people with and without immigrant background differ in their attitudes is group membership. The theory of ingroup favouritism and outgroup derogation (Tajfel, 1982) describes how basal distinguishing features of groups (e.g., gender) can lead to prejudice, stereotypes, and discrimination against the group to which one does not belong (outgroup). There are mainly positive attitudes towards the ingroup (e.g., Axt et al., 2014; Dunham et al., 2008). In contrast, negative attitudes towards the outgroup can develop (Brewer, 1999; Social Identity Theory: Tajfel & Turner 1986). For instance, Rutland (1999) found preference for the ingroup among British children starting at age of 10. Studies in the US have demonstrated that White Americans had more positive implicit preferences for their ingroup on average, while African Americans had no implicit preferences for their ingroup (Axt et al., 2014; Bar-Anan & Nosek, 2014; Rae et al., 2021). Furthermore, a study conducted by Baron and Banaji (2009) revealed no implicit preferences among African Americans aged 5 to 12 years when compared to any dominant outgroup (White Americans). In Germany, Stang et al. (2021) examined implicit attitudes towards people with Turkish immigrant background among elementary school students and showed that negative implicit attitudes were present among children without immigrant background. Among children with Turkish immigrant background, neither negative nor positive implicit attitudes towards people with Turkish immigrant background, i.e., their ingroup, were found.

Ingroup favouritism and outgroup derogation are well researched, but other underlying mechanisms or factors related to attitudes are not well documented. With respect to attitudes towards people with immigrant background, perceived discrimination can be an important influencing factor (e.g., Brown 2017). Discrimination describes the behavioral component of attitudes and thus behavior shown towards people with an immigrant background. Percieved discrimination reflects the extent to which people with immigrant background experience themself or their group as being genereally treated more unfairly compared to people without immigrant background. A panel study from Finland examining 293 people with immigrant background in the former Soviet Union (Russia and Estonia), found that perceived discrimination contributed to disidentification with the culture of residence and consequently to negative attitudes

towards the outgroup (Jasinskaja-Lahti et al., 2009). Based on ingroup favouritism and outgroup derogation, it can be assumed for adolescents with Turkish immigrant background that perceiving a high level of discrimination leads to positive attitudes towards one's own group. Adolescents without immigrant background, might perceive a low amount of discrimination against people with immigrant background, because they lack personal experience with this issue. In line with these theoretical assumptions, Stang et al. (2021) found a negative, albeit insignificant relation in tendency between perceived discrimination and implicit attitudes towards people with a Turkish immigrant background in elementary school. Furthermore, Wiley (2019) examined whether Dominican American undergraduate students showed less positive attitudes towards African Americans, although they perceived that they and African Americans were discriminated by White Americans based on a common category (language, immigrant status, or race). Therefore, it can be assumed that adolescents with immigrant background other than Turkish may have experienced discrimination themselves, but still have negative attitudes towards people with Turkish immigrant background in terms of ingroup favouritism and outgroup derogation.

2.3.2 Social identity theory

Another possible explanation for individual differences in attitudes is the person's social identity (Tajfel & Turner, 1986). An important factor in this context is the identification with the culture of residence (Berry et al., 2006; Zander & Hannover, 2013). As people with an immigrant background develop an identity both as a member of their culture of origin and related to their culture of residence, it is important to focus on the identification with the culture of residence as the "new" culture. Stang et al. (2021) revealed that the identification with the culture of residence was significantly positively related to negative implicit attitudes, indicating that more negative attitudes were present when the identification with the culture of residence was stronger. For adolescents with a Turkish immigrant background this could mean that a strong identification with the culture of residence (Germany) might lead to more positive attitudes towards members of this group (the new ingroup; Germans) compared to the group (culture of origin) with whom identification is weaker (Tajfel & Turner, 1986). This assumption can also be explained via ingroup favouritism and outgroup derogation.

2.3.3 Theory of planned behavior

Besides the theory of social identity, the theory of planned behavior (Ajzen, 1985; Maio et al., 2019) can also explain interindividual differences in attitudes. This theory assumes that behavior is best predicted by a concrete behavioral intention (Ajzen, 1991; Niepel et al., 2018). More precisely, this refers to a person's motivation to perform the respective behavior. In this context, motivation to act without prejudice is another influencing factor (Banse & Gawronski, 2003; Dunton & Fazio, 1997), for which it was demonstrated that the attitudes of White undergraduates with lower motivation to act without prejudice towards Black people on implicit and explicit measures were correlated. In contrast, White participants with high motivation to act

without prejudice made less prejudiced responses on explicit measures, even when they had negative implicit attitudes towards Black people (Dunton & Fazio, 1997). In another study taking a person-centered approach, four latent profiles corresponding to internally and externally motivated German and Dutch adults were found to act without prejudice (Bamberg & Verkuyten, 2021). The group with predominantly external motivation to behave without prejudice showed a high level of self-reported prejudice, yet scored lowest on the indirect measure, the unmatched count technique, of the four groups.

2.3.4 Contact theory

However, in addition to approaches related to the individual, also context factors such as contact with people with immigrant background can be considered as explaining differences in attitudes. One theoretical approach, which can elucidate the extent of implicit attitudes, stems from the work of Allport (1954). His contact theory postulates that direct contact between groups can lead to a reduction in stereotypes and prejudice. In this context, an improvement in intergroup relation occurs when groups have to interact with each other in certain situations, for example such as in the pursuit of a common goal. Moreover, it can be assumed that more high-quality contact will allow one to get to know stereotyped and prejudiced people better and thus to gain more knowledge about them, which may lead to positive implicit attitudes. According to Aberson and Haag (2007), implicit attitudes are one part of true attitudes and thus can be influenced, for example, via environment. In line with this assumption, a vast number of studies have reported that intergroup contact and friendships are associated with less negative attitudes towards outgroups (e.g., Boin et al., 2021; Davies et al., 2011; Raabe & Beelmann, 2011; van Zalk & Kerr, 2014). Further, cross-ethnic peer interactions and friendships have been shown to have psychosocial benefits and positive effects on academic outcomes (Graham et al., 2014; Lewis et al., 2018). Moreover, Lemmer and Wagner's (2015) meta-analysis involving 79 comparisons demonstrated the effectiveness of outgroup contact interventions in real-world settings outside the laboratory. Another study conducted by Liebkind et al. (2014) reported that after an intergroup contact intervention, both Finnish secondary school students with and without immigrant background tended to perceive future intergroup contact as more important. Cross-group friendships, quality of contact and quantity of contact are central constructs when measuring direct intergroup contact. Quality of contact refers to the personal experience of encountering the outgroup, which can be positive or negative. In contrast, quantity of contact refers to the frequency of encountering the outgroup (Lolliot et al., 2015). Dovidio et al. (2017) reviewed research testing Allport's (1954) contact theory, showing that quality rather than quantity of contact contributes to reduced negative attitudes and prejudice towards outgroups. Furthermore, De Coninck et al. (2020) analyzed how both forms of contact relate to explicit attitudes toward refugees, collecting data from adults in Belgium, Sweden, France, and the Netherlands via an online questionnaire. The results showed that quality rather than quantity of contact is related to attitudes. However, when findings regarding implicit and explicit attitudes are considered separately, quality of contact appears to have a greater impact on explicit attitudes and

quantity of contact on implicit attitudes (Dovidio et al., 2017). A further study conducted by Mähönen et al. (2011) also investigated quality and quantity of contact and their relations to implicit and explicit attitudes towards Russian immigrants among Finnish adolescents aged 14 to 17. The authors found that implicit attitudes were unrelated to quality and quantity of contact, while explicit attitudes were (Mähönen et al., 2011). Moreover, Aberson and Haag (2007) found in a study among White undergratuates that the interaction of quality and quantity of contact was a significant predictor of implicit attitudes. In light of these heterogenous findings, we will examine the relations between implicit attitudes and both quality and quantity of contact.

2.4 Research questions

Negative attitudes can have long-term consequences, for example, such as discrimination against people with immigrant background (e.g., Brown 2017). Greenwald et al. (2009) emphasized the importance of implicit attitudes in predicting intergroup behavior. Moreover, implicit attitudes systematically influence how people perceive and process information about group members, and respond to them (Dovidio et al., 2010), and may be reflected, for example, in the choice of friends or through schoolyard exclusion. Further, implicit attitudes are less prone to social desirability and represent an important part of true attitudes (Aberson & Haag, 2007). For this reason, it is relevant to clarify whether adolescents in Germany hold (negative) implicit attitudes towards people with Turkish immigrant background and which factors predict these attitudes. We addressed the following research questions:

1. To what extent do adolescents have negative implicit attitudes towards people with a Turkish immigrant background?

Hypothesis 1 In light of developmental psychological processes, we assumed that negative implicit attitudes towards people with a Turkish immigrant background would be present during adolescence.

2. Do different groups of adolescents differ in their negative implicit attitudes towards people with a Turkish immigrant background?

Hypothesis 2 Based on ingroup favouritism and outgroup derogation, we hypothesised that negative implicit attitudes towards people with a Turkish immigrant background would be present in adolescents without immigrant background (2a). For adolescents with immigrant background other than Turkish, we also assumed that negative implicit attitudes would be present (2b). For adolescents with Turkish immigrant background, we expected a preference towards their own group (2c).

3. Are (a) subjectively perceived discrimination against people with immigrant background, (b) identification with culture of residence, and (c) motivation to act without prejudice related to the extent of negative implicit attitudes?

Hypothesis 3 Based on social identity theory and ingroup favouritism and outgroup derogation, the following assumptions were made for the whole group. We expected a negative relation between subjectively perceived discrimination against people with immigrant background and negative implicit attitudes (3a). We assumed a positive association between identification with culture of residence (Germany) and negative implicit attitudes (3b). Further, for motivation to act without prejudice a negative relation with negative implicit attitudes was postulated (3c).

4. Are (a) quality and/or (b) quantity of contact with people with Turkish immigrant background associated with negative implicit attitudes among adolescents without and with immigrant background other than Turkish?

Hypothesis 4 Referring to Allport's (1954) contact theory, we assumed that both quality and quantity of contact would be negatively related to negative implicit attitudes (4a and b).

3 Method

3.1 Participants

A total of 257 adolescents participated in this study. Due to missing IAT values resulting from technical issues, analyses are based on data from 244 adolescents (60.7% female, 37.7% male, 1.6% diverse) who were 15.7 years old on average ($SD = 1.12$; data availability link: https://osf.io/y3smc/?view_only=5a88fa6b638046ecaecf1fc75498888a). The language of instruction is considered as prerequisite for successful integration of people with immigrant background (Hußmann et al., 2017). Therefore, immigrant background was operationalized via family language. Students could select only one of four response options ("I always or almost always speak German at home." / "I speak German at home most of the time and sometimes another language, which is: _____." / "I sometimes speak German at home and most of the time another language, which is: _____"/ "I never speak German at home, but I speak _____."/ "I always or almost always speak German at home"). No immigrant background is present if the first answer choice was selected and an immigrant background is present if one of the last three answer choices was chosen. Furthermore, in the formation of immigrant background via family language, adolescents' country of birth and parents' country of birth were additionally cross-checked. Thus, the proportion of adolescents with a Turkish immigrant background was 13.1% ($n = 32$) and with immigrant background other than Turkish 16.8% ($n = 41$). Adolescents who only spoke German at home comprised 70.1% ($n = 171$) of the sample. The majority of participants were enrolled in grammar school (56.6%). The three groups differed in age, amount of books at home as an indicator of socioeconomic status, and school type (see Table 1). Therefore, these variables were controlled for in subsequent analyses. The adolescents completed an online survey between November 2020 and July 2021. The link to the survey was distributed via schools, youth centres

Table 1 Means, standard deviations, MANOVA statistics and Bonferroni post-hoc comparisons

Dependent variables	M (SD)	F(df)	p	η_p^2	$M_{\text{Comparison}}$	$M_{\text{Difference}}$	p	95% CI for $M_{\text{Difference}}$ LL	UL
Age		7.95 (2, 240)	<.001	0.06					
1. Without immigrant background	15.88 (1.11)				1–2	0.22	.889	−0.29	0.73
2. Turkish immigrant background	15.66 (1.18)				1–3	0.75	<.001	0.30	1.21
3. Immigrant background other than Turkish	15.12 (0.95)				2–3	0.53	.117	−0.09	1.16
Books at home[a]		14.61 (2, 240)	<.001	0.11					
1. Without immigrant background	0.59 (0.49)				1–2	0.31	.003	0.09	0.53
2. Turkish immigrant background	0.28 (0.46)				1–3	0.39	<.001	0.19	0.59
3. Immigrant background other than Turkish	0.20 (0.40)				2–3	0.09	>.999	−0.18	0.36
School type[b]		13.95 (2, 240)	<.001	0.10					
1. Without immigrant background	0.66 (0.47)				1–2	0.20	.096	−0.02	0.41
2. Turkish immigrant background	0.47 (0.51)				1–3	0.42	<.001	0.22	0.62
3. Immigrant background other than Turkish	0.24 (0.43)				2–3	0.22	.133	−0.04	0.49

Note. N = 243

[a] 1 = *none or very few (0–10 books)* to 5 = *enough to fill three or more shelves (200 books)*. [b] 0 = non-grammar school, 1 = grammar school

* $p \leq .05$

and social media channels. The survery was designed to take about 15 min to complete. In the beginning, participants worked on the IAT. Afterwards, they answered questions concerning sociodemographics, the variables of interest, such as perceived discrimination, and identification with the culture of residence. Participation was voluntary. Withdrawal was possible at any time during the study. As an incentive, five 15 euro vouchers were raffled off among the participants.

3.2 Meassures

3.2.1 IAT

An IAT was conceptualized based on Stang et al. (2021) to measure implicit attitudes (Greenwald et al., 2003; Nosek et al., 2007a). The IAT and subsequent sociodemographic questionnaire were compiled and conducted online via SoSci Survey.

In successive blocks (see Fig.1), words were presented in the center of a mobile device with an external keyboard. These words could be assigned to response categories (target and attribute concepts) presented at the top right and left of the screen by pressing the corresponding keyboard keys (Greenwald et al., 1998; Nosek et al., 2007a). For the target concepts *German* and *Turkish*, the largest cities in Germany and Turkey (Statistische Ämter des Bundes und der Länder, 2019; TurkStat, 2018) were selected as well as the most popular baby names in Germany and, correspondingly, the most common Turkish-origin baby names in Germany in 2006 (Gesellschaft für deutsche Sprache, 2010, 2017). Each category consisted of eight words. Eight achievement-related adjectives were used for each of the attribute concepts *positive* and *negative* based on the "Good pupil" scale (Tsoi & Nicholson, 1982), encompassing emotional, behaviorial and motivational aspects. A complete list of these words, which were previously established by Stang et al. (2021), can be found in the supplementary material (see Table A).

3.2.2 Sociodemographics

Besides age, gender (0=male; 1=female; 2=diverse) and the family language (0=German; 1=Turkish, 2=other language), country of birth of the participants and their parents (0=Germany; 1=Turkey; 2=another country) was collected. Furthermore, the adolescents indicated how many books they had at home, ranging from 1=*none or very few (0–10 books)* to 5=*enough to fill three or more shelves (200 books*; Wendt et al., 2016). This variable was dichotomized for the following analyses (0=less than 100 books at home; 1=more than 100 books at home).

3.2.3 Variables of interest

3.2.3.1 *Perceived discrimination* The scale for perceived discrimination was adapted from items assessin perceived group-based discrimination from the National Educational Panel Study (NEPS) and captures whether students believe that people with immigrant background are discriminated against in Germany (Horr et al., 2020; four items; $\alpha_{\text{total group}}=0.90$, $\alpha_{\text{without immigrant background}}=0.89$, $\alpha_{\text{Turkish immigrant background}}=0.85$,

ADOLESCENTS' IMPLICIT ATTITUDES

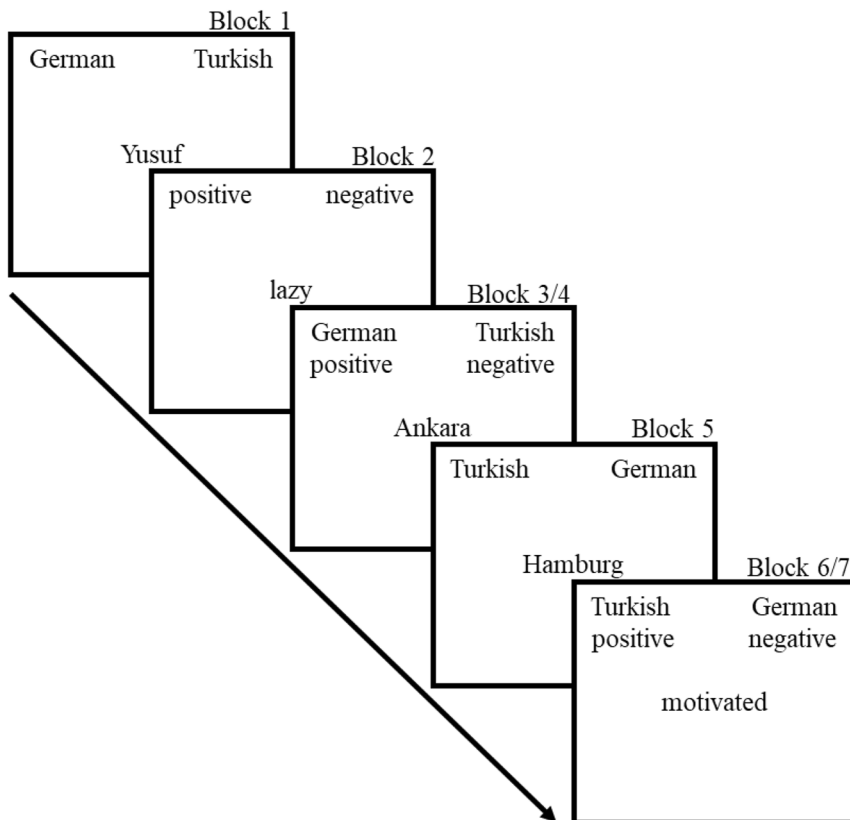Fig. 1 *Simplified IAT process (self-generated)*
Note. Blocks 1, 2, 3, 5 and 6 comprised 20 trials each, Blocks 4 and 7 40 trials each

$\alpha_{\text{immigrant background other than Turkish}} = 0.92$; e.g., "People who come from another country or speak another language are treated worse than others in Germany").

3.2.3.2 ***Identification with culture of residence (Germany)*** In order to capture adolescents' identification with culture of residence (Germany), items from the affective dimension of a scale for identification with Germany were used (Zander & Hannover, 2013; six items; $\alpha_{\text{total group}} = 0.80$, $\alpha_{\text{without immigrant background}} = 0.81$, $\alpha_{\text{Turkish immigrant background}} = 0.74$, $\alpha_{\text{immigrant background other than Turkish}} = 0.77$; e.g., "I have a good feeling when I think about Germany"). This scale provides information about the extent to which participants identify with Germany.

3.2.3.3 ***Motivation to act without prejudice*** The items for motivation to act without prejudice provide information about the strength of participants' conscious efforts to behave without prejudice and were selected from the German homonymous scale by Banse and Gawronski (2003) (eight items; $\alpha_{\text{total group}} = 0.79$, $\alpha_{\text{without immigrant}}$

Table 2 Means, standard deviations and intercorrelations between the variables of interest in the total sample

	M (SD)	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Immigrant background[a]	–	-.27*	-.33*	-.35*	-.02	.23*	-.28*	-.04	.26*	.20*
2. Age	15.62 (1.08)	–	.16*	.44*	-.16*	.07	.13	.14	-.10	-.06
3. Books at home[b]	–		–	.34*	.01	-.13	.17*	.11	.14	-.03
4. School type[c]	–			–	-.08	-.01	-.05	.22*	-.24*	-.07
5. D measure[d]	0.21 (0.36)				–	-.24*	.15*	-.10	-.08	-.16*
6. Perceived discrimination[e]	3.20 (1.03)					–	-.23*	.23*	.03	.25*
7. Identification with culture of residence (Germany)[e]	3.25 (0.75)						–	.07	-.17*	.01
8. Motivation to act without prejudice[e]	4.08 (0.65)							–	.06	.40*
9. Contact quantity (classmates/ friends)[f]	2.68 (0.53)								–	.31*
10. Contact quality[e]	4.15 (0.84)									–

Note. $N=185$

[a] 0=without immigrant background, 1=Turkish immigrant background, 2=immigrant background other than Turkish. [b] 1=*none or very few (0–10 books)* to 5=*enough to fill three or more shelves (200 books)*. [c] 0=non-grammar school, 1=grammar school. [d] Range of −2 to +2. [e] 4-point Likert scale ranging from 1=*strongly disagree* to 5=*strongly agree*. [f] 1=no classmates and no friends, 2=classmates but no friends or friends but no classmates, 3=both classmates and friends

* $p \leq .05$

background $=0.79$, $\alpha_{\text{Turkish immigrant background}}=0.72$, $\alpha_{\text{immigrant background other than Turkish}}=0.78$; e.g., "I ensure that my behavior is not influenced by prejudice").

3.2.3.4 ***Quality and quantity of contact to people with Turkish immigrant background*** The items assessing quality of contact were adapted from Aberson and Haag (2007) and indicate the extent to which contact with people with Turkish immigrant background was perceived as pleasant, familiar, voluntary, mutually beneficial, and positive (five items; $\alpha_{\text{total group}}=0.91$, $\alpha_{\text{without immigrant background}}=0.89$, $\alpha_{\text{Turkish immigrant background}}=0.92$, $\alpha_{\text{immigrant background other than Turkish}}=0.92$; e.g., "Please consider people with a Turkish immigrant background. I find contact pleasant"). All items were measured on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Quantity of contact was assessed as the number of friends and classmates of Turkish origin, captured with one item each, in accordance with Aberson and Haag (2007) ("Are there any classmates in your class who have a Turkish immigrant background (e.g., speak Turkish at school and/or at home)?", "Do you have friends who have a Turkish immigrant background (e.g., speak Turkish at school and/or at home)?"). For the subsequent analyses, a variable with the values 1 = no classmates and no friends, 2 = classmates but no friends or friends but no classmates, and 3 = both classmates and friends was generated for the two items. Tables 2 and 3 show the scale characteristics for the total sample and the subgroups.

3.3 Experimental design and IAT procedure

Participants were instructed to work on the IAT as quickly as possible and without mistakes. The adolescents were told that each word only belongs to one category. Incorrect assignments of the presented words to the target categories had to be corrected by the adolescents themselves before continuing. In the first block, the presented words (capital cities and baby names) had to be sorted into the target categories of either "German" (on the top left on the screen) or "Turkish" (on the top right on the screen) using the "E" and "I" keys. In the second block, the adjectives had to be sorted into the attribute categories "positive" or "negative," which were presented instead of the target categories "German" and "Turkish" at the top of the screen. The eight target words per block in these two categories were randomly presented. The intertrial interval was 250 miliseconds (Greenwald et al., 1998; Nosek et al., 2007a). Blocks 3 and 4 represent the compatible condition: target and attribute concepts were presented in accordance with a negative stereotype about people with Turkish immigrant background. The presented target words had to be categorized as either "German" and "positive" or "Turkish" and "negative" (see Fig.1). Block 3 was considered a practice for Block 4 (test). In Block 5, participants practiced sorting words to the target concepts in the opposite positions, with "Turkish" now on the left and "German" now on the right side of the screen. The subsequent sixth (practice) and seventh (test) blocks represented the incompatible condition. Here, the categories "Turkish" and "positive" as well as "German" and "negative" were paired, contradicting negative attitudes. The response latencies of Blocks 3 and 4 as well as 6 and 7 were crucial for calculating implicit attitudes (Greenwald et al., 2003; Nosek et al., 2007a).

The *D* scores range from −2 to +2. A *D* score of $|D| = 0.15$ or more can indicate the presence of negative or positive attitudes (Nosek et al., 2007b). In this study, a

Table 3 Means, standard deviations and intercorrelations between the variables of interest for subgroups without and with Turkish immigrant background

	Without immigrant background M (SD)	Turkish immigrant background M (SD)	Immigrant background other than Turkish M (SD)	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Age	15.82 (1.06)	15.52 (1.12)	15.08 (0.92)	–	-.11/ .10	.43*/ .30	-.23/ -.14	.07/ .01	.09/ .18	.03/ .29	.13/ -.40*	-.23/ -.15
2. Books at home[a]	–	–	–	.12	–	.04/ .31	.03/ -.06	-.23/ -.03	.23/ -.12	.10/ .06	-.11/ .02	.23/ -.01
3. School type[b]	–	–	–	.39*	.28*	–	-.23/ -.38*	.28/ -.14	-.33/ -.09	-.24/ .39*	-.05/ .04	-.04/ .20
4. D meassure[c]	0.24 (0.35)	-0.05 (0.37)	0.30 (0.32)	-.16	-.03	-.01	–	-.03/ -.32	.15/ .36*	-.17/ .18	.06/ .08	.33/ -.03
5. Perceived discrimination[d]	2.96 (0.99)	3.91 (0.90)	3.40 (0.98)	.19*	-.01	.05	-.17	–	-.25/ -.13	.30/ -.23	.01/ -.06	-.03/ .07
6. Identification with culture of residence[d]	3.40 (0.73)	3.14 (0.74)	2.87 (0.72)	.02	.11	-.15	.12	-.19*	–	.16/ .22	-.01/ -.24	.12/ .20
7. Motivation to act without prejudice[d]	4.06 (0.63)	4.33 (0.54)	3.93 (0.73)	.12	.15	.18	-.10	.34*	-.02	–	-.06/ .07	.13/ .15
8. Contact quantity (classmates/ friends)[e]	2.56 (0.59)	2.93 (0.26)	2.86 (0.35)	.01	-.05	-.21*	-.06	-.09	-.09	.05	–	-.12/ .43*
9. Contact quality[d]	3.98 (0.82)	4.71 (0.66)	4.26 (0.84)	.06	.04	-.03	-.20*	.22*	.02	.52*	.25*	-.20*

Note. N=185. Above the diagonal, values before the forward slash are bivariate Pearson correlations for adolescents with Turkish immigrant background (n=29) and values after the forward slash are bivariate Pearson correlations for adolescents with immigrant background other than Turkish (n=37). Below the diagonal, bivariate Pearson correlations are reported for adolescents without immigrant background (n=119)

[a] 1=*none or very few (0–10 books)* to 5=*enough to fill three or more shelves (200 books)*. [b] 0=non-grammar school, 1=grammar school. [c] Range of −2 to +2. [d] 4-point Likert scale ranging from 1=*strongly disagree* to 5=*strongly agree*. [e] 1=no classmates and no friends, 2=classmates but no friends or friends but no classmates, 3=both classmates and friends

* $p \le .05$

positive D score indicates the presence of negative implicit attitudes towards people with Turkish immigrant background due to both shorter response latencies in the stereotype-consistent condition (German/positive; Turkish/negative) and longer response latencies in the stereotype-inconsistent condition (German/negative; Turkish/positive). A negative D score indicates a rather preference towards this group. A D score of zero indicates that no bias is present.

3.4 Statistical analyses

The analyses were conducted in SPSS 27. A priori sample size was determined by carrying out the sensitivity power analysis with G*Power ($N=269$; Faul et al., 2007). To answer Research Question 1, the D measure (Greenwald et al., 2003) was tested against ± 0.15 with a one-sample t-test. To answer the Research Question 2, we conducted an analysis of covariance with the D measure as the dependent variable, immigrant background (without immigrant background, Turkish immigrant background and immigrant background other than Turkish) as the factor, and age, books at home, and school type as covariates. To address the third and fourth research questions, we ran (multiple) regression analyses. In Research Question 3, the dependent variable was the D measure and the independent variables were perceived discrimination, identification with the culture of residence and motivation to act without prejudice. The D measure was also used as the dependent variable when answering Research Question 4. The independent variables here were quality and quantity of contact with people with Turkish immigrant backgrounds. Listwise deletion in SPSS was used for missing data. The number of missing values was less than 5.2%. Results were considered statistically significant if the p-value was $\leq .05$. As effect size measures, partial eta-square and Cohen's d are reported (Cohen, 1988).

4 Results

4.1 Descriptive findings

For the whole sample, a significant negative correlation between immigrant background and identification with the culture of residence was found. Adolescents with a Turkish immigrant background and adolescents with immigrant background other than Turkish identified less with Germany on average, which was evident at the mean level (Tables 2 and 3). The correlations can be classified as small according to Cohen (1988). Furthermore, for the whole sample, there was a positive association between perceived discrimination and motivation to act without prejudice. This medium correlation according to Cohen (1988) indicated that adolescents who reported high scores on the perceived discrimination scale also reported high scores on the motivation to act without prejudice scale. Moreover, there was a significant positive correlation between quality and quantity of contact with people with Turkish immigrant background in the whole sample, indicating that a high frequency of contact goes along with a positive perception of contact. For the whole sample and for adolescents with immigrant background other than Turkish, the correlation could be classified

as medium. For adolescents without immigrant background, the correlation can be considered small (Cohen, 1988).

4.2 The presence of negative implicit attitudes in adolescents

With regard to the first research question, whether adolescents hold negative implicit attitudes towards people with Turkish immigrant backgrounds, an average D score of 0.21 ($SD = 0.37$) was found, which statistically significantly differed from 0.15, $t(243) = 2.45$, $p = .015$, $d = 0.16$. The effect can be classified as small (Cohen, 1988). The full sample exhibited negative implicit attitudes towards people with Turkish immigrant background on average. Thus, the data supported Hypothesis 1.

4.3 Differences in implicit attitudes across subgroups of adolescents

In the second research question, we investigated potential differences in negative implicit attitudes across subgroups. The analysis of covariance revealed a statistically significant main effect for the factor immigrant background (without immigrant background vs. Turkish immigrant background vs. immigrant background other than Turkish), $F(2,237) = 12.49$, $p < .001$, $\eta_p^2 = 0.10$. The effect can be classified as medium (Cohen, 1988). None of the covariates was significant, $F_{age}(1,237) = 1.11$, $p = .294$, $\eta_p^2 = 0.005$, $F_{books\ at\ home}(1,237) = 0.01$, $p = .964$, $\eta_p^2 = 0.000$, $F_{school\ type}(1,237) = 0.85$, $p = .358$, $\eta_p^2 = 0.004$. On average, negative implicit attitudes were present among adolescents without immigrant background, $M_D = 0.24$, $SD = 0.36$, $t(170) = 3.35$, $p = .001$, $d = 0.26$, and among adolescents with immigrant background other than Turkish, $M_D = 0.29$, $SD = 0.31$, $t(40) = 2.83$, $p = .007$, $d = 0.44$. According to Cohen (1988), both effects can be considered small. Adolescents with Turkish immigrant background were found to have no positive implicit attitudes towards their own group on average, $M_D = -0.08$, $SD = 0.37$, $t(31) = 1.12$, $p = .273$, $d = 0.20$. The D score in this subgroup was not significantly different from 0.00, indicating no implicit preference for either German or Turkish, $t(31) = -1.19$, $p = .243$, $d = 0.21$. Thus, the data supported Hypotheses 2a and 2b, but not 2c.

4.4 Associations of perceived discrimination, identification with culture of residence, and motivation to act without prejudice with implicit attitudes

To answer Research Question 3, a multiple regression analysis was calculated for the whole sample (Table 4, Model 1). Perceived discrimination was statistically significantly negatively related to negative implicit attitudes. This means that the more discrimination against people with immigrant background respondents perceived, the less negative implicit attitudes were present. The magnitude of the effect was small. Both identification with the culture of residence and motivation to act without prejudice were not statistically significantly associated with negative implicit attitudes. Thus, the results support Hypothesis 3a, but not 3b or 3c.

Table 4 Multiple linear regression analyses of perceived discrimination, identification with culture of residence, and motivation to act without prejudice on implicit attitudes

Variables	Model 1				Model 2				Model 3				Model 4			
	B	SE	β	p	B	SE	β	p	B	SE	β	p	B	SE	β	p
Age	−0.02	0.02	−0.07	.357	−0.01	0.02	−0.04	.622	−0.04	0.02	−0.11	.145	−0.03	0.02	−0.09	.235
Books at home[a]	0.02	0.05	0.03	.639	0.02	0.05	0.02	.973	0.04	0.05	0.05	.477	0.04	0.05	0.06	.422
School type[b]	−0.01	0.06	−0.01	.850	−0.03	0.06	−0.04	.574	−0.02	0.06	−0.03	.729	−0.02	0.06	−0.02	.758
Perceived discrimination[c]	−0.07	0.03	−0.20	.004	−0.07	0.02	−0.20	.003	−	−	−	−	−	−	−	−
Identification with culture of residence (Germany)[c]	0.01	0.03	0.02	.742	−	−	−	−	0.03	0.03	0.07	.321	−	−	−	−
Motivation to act without prejudice[c]	−0.02	0.04	−0.04	.598	−	−	−	−	−	−	−	−	−0.04	0.04	−0.07	0.291
R^2	0.04				0.03				0.01				<0.01			

Note. Model 1 and Model 3: $N=230$, Model 2: $N=236$, Model 4: $N=231$. Model 1 ($F(6, 224)=2.38$, $p=.030$) and Model 2 ($F(4, 232)=2.89$, $p=.023$) were statistically significant. Model 3 ($F(4, 226)=1.05$, $p=.385$) and Model 4 $F(4, 227)=1.02$, $p=.399$) were not statistically significant

[a] 1=*none or very few (0–10 books)* to 5=*enough to fill three or more shelves (200 books)*. [b] 0=non-grammar school, 1=grammar school. [c] 4-point Likert scale ranging from 1=*strongly disagree* to 5=*strongly*

4.5 Associations of quality and quantity of contact with implicit attitudes

Research Question 4 addressed the relation between quality and quantity of contact with people with Turkish immigrant background and negative implicit attitudes. The multiple linear regression analysis (Table 5, Model 1) revealed that neither contact quality nor contact quantity was associated with negative implicit attitudes among adolescents without immigrant background and those with immigrant background other than Turkish. Thus, the results did not support Hypotheses 4a and 4b.

5 Discussion

We investigated the extent to which adolescents have negative implicit attitudes towards people with Turkish immigrant background. Additionally, it was analyzed whether there are differences in the extent of implicit attitudes between adolescents without immigrant background, with Turkish immigrant background and with immigrant background other than Turkish. Furthermore, it was examined whether perceived discrimination, identification with the culture of residence and motivation to act without prejudice were related to implicit attitudes. It was also investigated whether quality and quantity of contact with people with Turkish immigrant background were associated with implicit attitudes.

As assumed in Hypothesis 1, it was found that adolescents hold negative implicit attitudes towards people with Turkish immigrant background. This finding is explainable for developmental reasons, as children as early as aged 2 to 5 begin to evolve attitudes towards different groups, which continue to develop and change throughout childhood. Evaluative conditioning can be used in this context. Here, two stimuli are linked to each other. The valence of a stimulus, which is either positive or negative, is transferred to another neutral stimulus via combination of both. For example, observed repeated negative behavior by classmates or friends towards people with an immigrant background can be learned and reflected in behavior through rejection. Also, the unequal patterns of transitions from primary to secondary education of immigrant classmates (e.g., fewer transition to grammar schools) after fourth grade, as observed among the children may reinforce stereotypes, especially among children who already have stereotypes. The findings are also consistent with results showing that implicit biases are present in adolescence. Due to internalized cultural norms, attitudes toward sensitive topics such as prejudice are less frequently expressed explicitly (Baron, 2015; Steele et al., 2018). Moreover, the results are consistent with previous empirical findings on implicit attitudes among elementary school students (e.g., Stang et al., 2021).

In line with our assumptions in Hypothesis 2, adolescents without immigrant background, with Turkish immigrant background and with immigrant background other than Turkish differed in their implicit attitudes. For adolescents without immigrant background and those with immigrant background other than Turkish negative implicit attitudes towards people with Turkish immigrant background were found. In contrast, adolescents with a Turkish immigrant background held no positive implicit attitudes towards people with a Turkish immigrant background. The presence of

Table 5 Multiple linear regression analyses for contact on implicit attitudes

Variables	Model 1				Model 2				Model 3			
	B	SE	β	p	B	SE	β	p	B	SE	β	p
Age	−0.03	0.03	−0.10	.235	−0.02	0.03	−0.06	.520	−0.03	0.03	−0.10	.233
Books at home[a]	−0.02	0.06	−0.04	.675	−0.03	0.06	−0.04	.613	−0.03	0.06	−0.04	.668
School type[b]	−0.04	0.07	−0.06	.524	−0.06	0.07	−0.08	.372	−0.04	0.06	−0.06	.490
Contact quantity (classmates/friends)[c]	0.01	0.05	0.02	.846	−0.03	0.05	−0.06	.461	–	–	–	–
Contact quality[d]	−0.06	0.03	−0.14	.103	–	–	–	–	−0.05	0.03	−0.13	.097
R^2	0.01				−0.01				0.02			

Note. Model 1 and Model 3: $N=164$, Model 2: $N=168$, Model 1 ($F_{(5, 159)}=1.34, p=.249$), Model 2 ($F_{(4, 164)}=0.82, p=.515$), and Model 3 ($F_{(4, 160)}=1.68, p=.158$) were not statistically significant

[a] 1 = *none or very few (0–10 books)* to 5 = *enough to fill three or more shelves (200 books)*. [b] 0 = non-grammar school, 1 = grammar school. [c] 1 = no classmates and no friends, 2 = classmates but no friends or friends but no classmates, 3 = both classmates and friends. [d] 4-point Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*

negative attitudes in adolescents without and with immigrant background other than Turkish can be interpreted in terms of ingroup favouritism and outgroup derogation (Brewer, 1999; Tajfel, 1982), as this theory assumes that indidviduals strive for a positive social identity, which develops through membership in a group and by comparing the ingroup with a relevant outgroup. Therefore, positive attitudes are more likely to be attributed to the ingroup compared to the outgroup (Tajfel, 1982; Tajfel & Turner, 1986). Moreover, the finding is in line with prior research examining other age and/or ethnic groups (Binggeli et al., 2014; Brown, 2011; Stang et al., 2021; Wiley, 2019). For adolescents without immigrant background and with immigrant background other than Turkish, the *D* measure could be interpreted as a reflection of subjectively perceived group differences. The finding for adolescents with Turkish immigrant background was contrary to our hypothesis. However, Stang et al. (2021) likewise found no preference for the ingroup among elementary school children with Turkish immigrant background. One explanation for this result could be the dominance (status) of the other group, in this case adolescents without immigrant background (Baron & Banaji, 2009).

Consistent with our assumptions in Hypothesis 3, perceived discrimination was related to implicit attitudes towards people with Turkish immigrant background. This finding can be integrated into previous research and interpreted in terms of ingroup favoritism and outgroup derogation (e.g., Moscatelli et al., 2017). For example, Stang et al. (2021) found for elementary school students that perceiving greater discrimination against people with immigrant backgrounds went along with less negative implicit attitudes towards people with Turkish immigrant background, although this finding was not statistically significant. Our significant results may reflect the fact that adolescents are more familiar with the concept of discrimination. Contrary to our assumptions, implicit attitudes were not related to identification with the culture of residence, although bivariate correlations existed, indicating that higher identification with the culture of residence was associated with more negative attitudes (Stang et al., 2021). Further, motivation to act without prejudice was unrelated to implicit attitudes, which could be due to the small sample size. Furthermore, neither the quality nor the quantity of contact with people of Turkish immigrant background was related to negative implicit attitudes. For quality of contact, bivariate negative correlations were existent, which were in line with our assumptions. The only marginally significant relation in the regression could be due to the small sample size. Our results are consistent with Mähönen et al. (2011), for example, who also found no asscociations between either form of contact and Finnish adolescents' implicit attitudes toward Russian immigrants.

5.1 Limitations and strengths

One limitation of this study is the relatively small sample size of the subgroup of adolescents with Turkish immigrant background, meaning that specific subgroup analyses were not possible. Although the IAT is the most commonly used measure of implicit attitudes, another limitation concerns the validity of the IAT and the interpretation of latencies, which remain critically discussed in research (Oswald et al., 2013; Schimmack, 2021). Numerous studies have shown that the IAT has predictive valid-

ity and that response time falsifications can be identified and partially corrected (Bar-Anan & Nosek, 2014; Bar-Anan & Vianello, 2018; Cvencek et al., 2010; Greenwald et al., 2009). Kurdi et al. (2021) summarized that "the validity of the IAT as a measure of automatically revealed associations does not depend on any particular outcome of this debate" (pp. 431). In addition, possible sequence effects have to be considered when interpreting the *D* score, because the order of compatible and incompatible blocks were not randomly assigned across the participants. However, all three groups would be equally affected by sequence effects, so that the interpretation with respect to the comparison of the three groups of adolescents is unaffected. Finally, whether implicit and explicit attitudes are distinct constructs, or whether implicit and explicit measures reflect the same underlying latent construct, remains an open question (Bar-Anan & Vianello, 2018; Kurdi et al., 2021) and should be investigated within further studies. Those should include both, implicit as well as explicit measures to assess implicit attitudes towards various differently societal sensitive topics such as, for example, culture and religion to form a fine-grained picture regarding this important question.

These limitations are balanced out by several strengths. The IAT was selected as a non-reactive method for capturing implicit attitudes, reducing bias due to socially desirable responses. For socially sensitive topics such as negative attitudes towards people with immigrant background, implicit measures have a considerably higher predictive validity than explicit measures (Greenwald et al., 2009). By focusing on adolescence as an important time period for the development of social identities and attitudes towards various groups, and by systematically including constructs that are theoretically relevant for attitudes, the current study contributes to expanding the existing body of knowledge.

5.2 Implications for research and practice

The results and limitations of our study have several implications for research and practice. One concerns including achievement measures, which would make it possible to examine associations between implicit achievement-related attitudes and students' actual achievement and therefore could illucidate stereotype or implicit attitude accuracy (Hall & Goh, 2017; Jussim et al., 2015). As we combined names and cities to impress target categories in the IAT, further research could investigate whether using only names or only cities makes a difference to clarify whether cities would be more likely to activate implicit attitudes about the country rather than people. Furthermore, in light of ongoing discussions on variability in the consistency of implicit and explicit attitudes, it would be interesting to examine whether the two measures are related and their associations with the other variables examined in this study. Moreover, as attitudes can be predictive for behavior, it would be worthwhile to investigate in futurue studies whether implicit and explicit attitudes are related to positive behavioral intentions (Yitmen & Verkuyten, 2018). Thus, it could be examined, for example, whether concession of own prejudices (Banse & Gawronski, 2003) is related to behavioral intentions (Yitmen & Verkuyten, 2018) and that attitudes mediate these relation. Additionally, separating quality of contact among friends and classmates might be insightful in terms of their relations with implicit

attitudes. Furthermore, the stability of implicit attitudes could be investigated in a longitudinal study, thus addressing current validity issues. For this aim, a parallel designed IAT could be used to prevent possible learning effects. In the context of such a study, it would be interesting to examine to what extent other variables, such as stereotypes held by parents and peers, as central socialization agents, are related to children's attitudes and their stability or change (Miklikowska, 2017).

The results are also important for educational practice. Given the presence of negative implicit attitudes, which may reflect negative stereotypes and are in turn related to behavior (Ajzen, 2012), it is important to make educational practioners aware of this issue and empower them to intervene and implement trainings for students to reduce negative implicit attitudes. As stereotypes and stereotype threat can influence children and youth with an immigrant background, it is important to intervene early in order to reduce negative attitudes and disparities and thus to promote positive intergroup contact in our diverse societies (Murrar et al., 2020).

Statements and declarations

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