



Conceptualizing and measuring community road-safety climate



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ABSTRACT

This study applies the safety-climate concept to road safety and proposes a new concept – community road-safety climate. To date, safety climate has been a measure of a formal organizational unit and a valid predictor of unit members' behavior and unit outcomes. However, many drivers do not drive when at work, so that organizations have only limited influence on road safety. We suggest that the community level adds value to the organizational level of analysis in climate research and can improve understanding of road-safety behavior. We conducted a qualitative interview-based study ($n = 61$) in order to explore community influence on road safety and develop a safety-climate scale; and a quantitative questionnaire-based study ($n = 132$) to test that scale. In both studies we found evidence of a community-level road-safety climate, and that this concept is particularly relevant in the case of geographical communities.

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1. Introduction

The intention of this study is application of the concept of safety climate, which is widely used in organizational psychology (Clarke, 2010; Clarke and Ward, 2006; Luria, 2008a,b; Luria, 2010; Neal and Griffin, 2006; Zohar, 1980, 2010; Zohar and Luria, 2005, 2010; Schneider et al., 2013) at the community level (Fagan et al., 2008; MacQueen et al., 2001; Maton, 2008; Wellman and Leighton, 1979), thereby providing a level of analysis for measurement of safety climate that differs from those currently measured, i.e. at the organizational, group, family, and individual levels. We find this level of analysis relevant to safety behavior when individuals are *not* actually “on the job”, and we focus on road safety because many employees do not drive at work, so that organizational influence on their driving behavior would be limited.

More than two decades ago, Keys and Frank (1987) suggested the complementary contributions of organizational and community studies. Later studies followed suit (Boyd and Angelique, 2002; Bryan et al., 2007; Campbell et al., 1998; Chilenski et al., 2007; Maton and Salem, 1995; Townsend and Campbell, 2007). In line with these studies, we present the concept of community road-safety climate and two preliminary studies that shed light on that concept.

1.1. Safety climate and road safety

Safety climate is defined as employee perceptions of policies, procedures and practices concerning safety in organizations (Zohar, 1980). Based on the gestalt approach, safety-climate researchers argue that individuals behave according to their perceptions of patterns indicating guidelines for safety behavior in their organizational environment (Zohar and Luria, 2004). On the basis of construct or role theory (Katz and Kahn, 1978), social learning (Bandura, 1986), and expected utility (Vroom, 1964), a number of studies have postulated a positive relationship between safety climate and role behavior (Griffin and Neal, 2000; Hofmann and Stetzer, 1996; Zohar and Luria, 2004, 2005). A meta-analysis revealed significant relationships between safety climate and safety outcomes such as employee safety behavior and accident rates (Christian et al., 2009; Nahrgnag et al., 2011).

Because road accidents are a significant cause of work-related injuries (Driscoll et al., 2005), researchers focused on road safety climate in organizations (Huang et al., 2013; Strahan et al., 2008; Wills et al., 2006; Zohar et al., 2014), and found significant relationships between road safety climate and work-related driving behaviors, including “near misses” when driving. However, people also drive when not at work, sometimes at night, including those who are too young to work or retired, and are also more likely to be involved in accidents (McGwin and Brown, 1999).

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1.2. Community level road safety climate

Studies suggest that safety climate exists both in organizations and in smaller groups such as departments (Zohar and Luria, 2005, 2010; Luria, 2010). A recent study found evidence for a family-level road-safety climate, and demonstrated its effect on young drivers (Taubman-Ben-Ari and Katz-Ben-Ami, 2012). Organizational-level climate thus focuses on formal organizational policies and procedures, while group-level climate focuses on less formal everyday practices (Zohar and Hofmann, 2012) such as whether safety is discussed in the group, whether positive feedback is given to employees who behave safely, etc. (Zohar and Luria, 2005, 2010). Within the same organizational policies and procedures, different groups and departments use their own discretion concerning enactment of those policies (Dietz et al., 2003). Regarding family-level safety climate, most perceptions of informal safety practices are captured within this concept, including family communication about safety, feedback and reactions to safe and unsafe behaviors, and the behavior and role model of parents (Taubman-Ben-Ari and Katz-Ben-Ami, 2012).

This study posits that climate may also emerge in informal groups, and that a community is also an informal group, requiring more meticulous analysis in regard to road safety climate. Indeed, culture has even been analyzed and measured at the national level (Hofstede, 1980; Hampden-Turner and Trompenaars, 2006) and more specifically at the level of national traffic-safety culture (Girasek, 2012, 2013). It is suggested that people of the same nationality have similar values, norms and assumptions regarding driving and road safety. Girasek's (2012, 2013) studies revealed that national-level issues such as monitoring alcohol-impaired drivers and speeding that demonstrate government attitudes to traffic safety are germane to the emergence of a national traffic-safety culture, even though heterogeneity exists within nationalities. Rakauskas et al. (2009) demonstrated that people from rural areas engage in riskier driving than city-dwellers in the same country. We suggest that, within national-level safety regulations and formal boundaries, variability will exist among local communities of that nationality.

A community is a social unit that is broader than an organization, but is small enough to form a cohesive social network with shared climate perceptions (McMillan and Chavis, 1986; Sarason, 1974; Schriver, 2001). However, there are many formal aspects in community life that have much in common with those of organizations, e.g. people limit the time, energy, and commitment they devote to the system (Schriver, 2001) and are also characterized by interdependent cooperation, conflict, adjustment, assimilation and competition (Warren, 1978). Communities are goal- and process-directed, having formal and informal systems for dealing with relations and operations in which leaders have broader authority than other community members (Rubin and Rubin, 2008). However, unlike organizational tasks that often require knowledge acquired in training processes and certification, community membership tends to be based on experience (Boehm and Staples, 2005).

Based on the above premise, we suggest that, because road safety is important for communities sharing the same geographic location (i.e. geographic communities), road-safety climate perceptions may emerge within such communities. It is also possible that even in non-geographical communities there will be discussion and shared climate perceptions regarding road safety. We conducted two studies to investigate community road-safety climate. The first, a qualitative study, tested whether road safety is discussed and communicated within communities and perceived as relevant to community life. The second study developed and tested a road-safety climate questionnaire, and demonstrated its validity.

2. Study 1: Road safety and community life

Traditionally, the concept of community refers to a group of people living in the same geographical area, concentration and proximity, having significant interactive relations and common attitudes to life, as expressed in behavior, traditions and speech (Dunham, 1972; Lowe, 2000; Rubin and Rubin, 2008). Currently, the tendency is to refer to “functional communities” and/or “non-place communities” whose geographical location is either loose or non-existent (Schriver, 2001; Weil, 1996).

According to Warren's system analysis (1978), communities can also be defined as organized social activities that provide people with access to resources they require in their daily lives. The functional units Warren described include: (1) local participation in production, distribution and consumption; (2) socialization or transmission of knowledge; (3) social control; (4) social participation, referring to joint activities; and (5) mutual support. A community, according to this functional analysis, may refer to a geographic framework, but its geographic boundaries are not demarcated. Studies have noted that, despite the lack of a common territorial base for community life, functional communities are still arise frequently in specific geographic locales (Swaroop and Morenoff, 2006; Sheras and Koch-Sheras, 2006).

Climate emerges in two ways. It is either based on practices, policies, and procedures relating to climate communicated by leaders and managers of an organization to its employees (Zohar, 1980; Zohar and Luria 2004, 2005); or it emerges from group members' interactions about climate, known as collective sense-making (Weick et al., 2005). In this process, members of an organization try to understand their complex environment (Gonzalez-Roma et al., 2002; Klein et al., 2000; Luria, 2008a,b; Zohar and Tenne-Gazit, 2008). Since community differs from organization in that it may not have a formal structure (Wuthnow, 1998), the intuitive reference point for climate perceptions may be more ambiguous and informal. Nonetheless, communities do develop a hierarchical structure (Boehm et al., 2010; Boehm and Staples, 2005; Bono et al., 2010), and cohesive group processes with frequent interaction among members (Gilchrist, 2004).

Such elements of communication about a facet depend on the relevance of that facet to the organization. Therefore, we assume that road safety is relevant to communities using the same roads, on which improper road safety behavior of one community member endangers the others. Road accidents are a universal problem, so it is also likely that the issue will be discussed in communities further afield.

Climate perception indicates which behaviors are approved and supported in regard to specific strategies (Schneider, 1990), informing group members about policies (such as training procedures or resource-allocation) that are not always formally declared as genuine priorities (Zohar and Luria, 2004). For example, the management of an organization may declare that safety is vital, but the climate will not be high because employees perceive that when safety improvements cost money or delay production they are not implemented.

We hypothesize that road safety is discussed in communities that share road risks, and in other functional communities where this issue emerges. Such group-level interactions and collective sense-making are necessary for development of shared climate perceptions. In our first study we employed a qualitative method to reveal such sense-making processes in communities. Because climate is a measure of individual perception, we wanted to understand how individual community members perceived their community (see also: Schneider et al., 1992).

2.1. Method

The sample, consisting of 61 members of a community, was based on convenience sampling of members available to the research team. We used maximum-variation sampling, which involves deliberately selecting a wide variation of dimensions of interest in the target population. This strategy helps to identify important patterns that cut across variations in the sample. Our research team consisted of 25 students, and we assumed that each student would be related to a different community, thereby creating a diverse sample. After training them about types and definitions of communities, and about interviewing, they were asked to recruit individuals from various functional and geographical communities. The method yielded a heterogeneous sample in which 39 participants viewed themselves as members of a geographic community, and 22 were members of functional communities. Geographic communities included city neighborhoods, community and communal villages, while functional communities included e.g., cyclists, dancers, and science-fiction fans. Thirty-nine participants were female. Average age was 32, ranging from 18 to 83. The communities were from all areas of Israel.

Semi-structured interviews were conducted by two members of the research team, using the same questions for comparison between the different types of community. It is important to note that a participant might belong to more than one community, so the questions and answers focused on the specific community to which the participant felt most attached, i.e. if a participant was more attached to his or her geographical community, s/he reported on how road safety was discussed in that specific community.

Given that communities are informal groups, it is important that the participant identifies him/herself as part of a community in order to be influenced by that community climate. This is aligned with studies about sense of community. These studies have demonstrated the importance of members of communities feeling that they 'belong' in order to identify psychologically with their community, and also to be influenced by the community's life (Mannarni et al., 2012; Obst and White, 2004; 2005, 2007). It should also be noted that, in this study, participants were asked about a specific community only after they had identified it as their community.

One team-member interviewed, another wrote down the questions and answers, including age, education, etc. of the interviewee. To ensure that the participant understood what was meant by "community", and to separate geographic from functional communities, questions were also asked about the community. Before asking about safety, we asked participants to tell us about their community in general, their involvement in community life, the characteristics of the community and its activities. The interview then focused on road safety, and participants were asked whether road safety is addressed in the community. If yes, participants were asked for details and examples of how it is addressed.

Data content was analyzed in order to attain reliability and agreement about themes. Transcripts were repeatedly read by three members of the research team, and references to road safety were examined closely. The data were then coded and classified into themes, and interview material was organized into subjects, words, sentences, and ideas. Patterns among geographic and functional communities were compared and analyzed, and the findings interpreted.

2.2. Results

Results show that when describing their community participants used terminology which depicted formal mechanisms, some of which are similar to those of organizations: "There are formal meetings of the selected committee" (from a neighborhood); "There

are gatherings of the village association and elections for the association" (from a community village); "Every year we appoint members for community roles: treasurer, head of the community, editor of the newspaper." (from a neighborhood); "There are many rules and regulations. For example, community members must send their children to the community's special kindergartens. Boys and girls are educated separately, of course." (from a Hassidic community).

Almost half of the participants (44%) reported that road safety was addressed in their communities, as did more than half of the participants (59%) in geographic communities, supporting our hypothesis that road-safety climate is relevant to communities whose members use the same roads. For example:

"The community pays much attention to [road safety]. At the beginning of each season, the person responsible for vehicles publishes instructions for safe driving. In addition, a pub for the young kibbutz members has been opened, to avoid driving late at night and on weekends. There is also high-level maintenance of the kibbutz vehicles" (from a kibbutz).

Only 18% of participants from functional or non-place communities reported that road safety was addressed in their community. To understand which communities address the issue, we compared those in which it emerged with those where it did not emerge. As expected, road safety was considered in communities exposed to road risks, e.g. cyclists who ride together, and car fans driving together. Members of other functional communities that do not share the same road risks (dancers, musicians, science-fiction fans, gamblers, football fans, etc.) do not address the issue of road safety in their communal life.

We found five recurring themes demonstrating that community-level climate emerges (See [table 1](#)):

- (1) *Importance of road safety*: According to climate theory, a climate facet must be explicitly recognized as an important goal of an organization (Zohar and Luria, 2004). Interviewees reported that, e.g.: "The community attaches great importance to road safety" (from a neighborhood); "Road safety is an important issue and the city council devotes much effort to preventing accidents" (from a small town).
- (2) *Communicating road safety*: When group members discuss safety and try to make sense of their environment, shared climate perceptions emerge (Luria, 2008a). Interviewees reported that, e.g.: "The board members make sure that pedestrian crossings are prominent, and now they are actively reducing public traffic and the number of buses leaving and entering the neighborhood" (from a neighborhood); "We have a road-safety committee that publishes important information about the subject for all the residents" (from an agricultural village); "There are many signs warning against speeding or driving under the influence of alcohol. The issue is also raised on the local radio, in the local newspaper, and in schools" (from a small town). The participants also reported on informal interactions between community members in issues related to road safety: "When an accident happened at the junction near the exit of our village, which is dangerous because it allows fast driving, all the members try to help. After the incident they talk among themselves about how the road is dangerous and that the community must make sure the exit is changed, or about asking the police to put a police car at the junction to monitor speeding violations" (from an agricultural village), and "There are discussions among kibbutz members about road safety on a daily basis" (kibbutz).
- (3) *Expectations*: The key climate phenomenon is the emergence of group-level behavioral expectations (Zohar and Hofmann, 2012): We found clear evidence of expectations regarding

Table 1

Themes and interview excerpts – community road safety climate (Study 1).

Themes	Excerpts from interviews
1. Importance of road safety	“The community takes the issue of road safety very seriously. I remember there was a demonstration recently in the neighborhood about closing a street for vehicles, because it wasn't safe for the pedestrians” (respondent from a neighborhood) “Road safety is a primary issue in our community, because many of us are on the roads for most of the day” (respondent from a city)
2. Communicating road safety	“There are many lectures, especially for children, regarding road safety and safe driving” (respondent from communal village) “The community highlights road safety, and provides information and tips for safe cycling” (respondent from cyclists group)
3. Expectations	“In Tel Aviv it is very common to take a taxi when we go out, so that we don't drink and drive; and there are many posters around the city and near pubs and clubs about the subject” (respondent from a young adults community in a city) “All community members are expected to take every precaution while cycling, and obey both traffic rules and those published by the cyclists' community” (respondent from cycling community)
4. Consequences of unsafe behavior	“If one cyclist sees another one doing something that could endanger him/her on the roads, usually s/he will comment about it” (respondent from cycling community) “Members who receive fines or penalties for safety violations are not allowed to use the kibbutz vehicles” (respondent from Kibbutz)
5. Acknowledgment	“We give positive notes to those who actively try to promote this important subject” (respondent from a neighborhood) “I personally tried to initiate advanced driving courses . . . , and received a lot of encouragement about them” (respondent from car fans community)

safety: “Overall, the community expects proper behavior and safety on the roads. Driving can be mad and dangerous. We want to change that, and to make sport safe in a safe community”. “I sincerely hope that members of the community obey the rules. People who are car fans and want to “hang out” in the street must think twice, because they belong to a community which expects and encourages them not to do such things” (car fan respondent).

“Of course the community has an impact on its members; we encourage taking precautions when it comes to road safety, preserving and maintaining the trails and pathways, and attempting to raise awareness of this sport . . . insist on protection during the ride, orderly and safe trails, and riding only in permitted areas”.

“The community tries to influence primarily about safety . . . all members of the group are required to read and sign a document regarding road safety, to watch videos on the subject, and to participate in annual lectures” (cyclist); and “Members are obliged to follow the safety rules, and wear protective gear day and night” (cyclist).

- (4) *Consequences of unsafe behavior*: According to climate theory, the high priority of a facet should be enacted daily (Zohar and Hofmann, 2012). Many climate studies indicate the consequences of improper behavior (Luria 2008a,b; Zohar and Luria, 2004, 2005, 2010). We also found that: “We installed a device in kibbutz vehicles, that beeps when exceeding the speed limit; and members who have been fined or penalized for safety violations are not allowed to use the vehicles” (kibbutz).
- (5) *Acknowledgment*: Our respondents reported on positive recognition of those who act to improve road safety within the community, including: “We encourage young children and adults to attend lectures and seminars about road safety, and give positive marks to those who actively promote this important issue” (from a neighborhood). “My father-in-law is a volunteer in the community police, and gives lectures. He has received several awards for his contribution to road safety in the community” (from a small town).

2.3. Discussion

Our findings affirm the existence of group sense-making processes leading to shared perceptions regarding road safety climate within communities. Like other organizations, communities com-

municate expectations and a sense of the importance of specific issues. In regard to road safety there is within-community dialog about behavior on the road, but it is obvious that safety climate is most likely to emerge in geographic communities and specific communities that share road risks.

We found several recurring examples of how road safety climate expectations are communicated in community settings. In line with the organizational safety- climate literature (Zohar, 1980; Zohar and Luria, 2005), we found that members realize the relative importance of specific facets for their communities, communicate about road safety within the communities, are aware of community level expectations, and feel that the community penalizes risky road safety behavior on one hand, and acknowledges safe behavior on the other.

These results provide the basis for a quantitative study of community road- safety climate and also support the concept.

3. Study 2: Measuring community road-safety climate

Safety climate is traditionally measured quantitatively, by means of questionnaires (Zohar, 1980, 2010) relevant to a variety of settings. For example, Zohar (1980) measured safety climate in manufacturing industries; Huang et al. (2013) discuss safety climate in transport organizations. The safety-climate scale has also been adapted for military (Luria, 2008a,b; Luria, 2010) and family settings (Taubman-Ben-Ari and Katz-Ben-Ami, 2012). The literature provides evidence that individuals' perceptions about safety practices and policies in the group they belong to can help to capture the relative importance of safety for that group. This provides quantitative evidence of road-safety community climate and tests the value of a safety-climate questionnaire in various communities. Study 1 provided evidence that processes occurring during organizational climate formation also occur in various communities. We therefore hypothesized that community members would be able to evaluate the road safety climate of their own community.

3.1. Method

3.1.1. Sample

Using a convenience method based on purposeful maximum variation sampling (see details in Study 1) we sampled 149 subjects, 17 of whom belonged to professional communities that are very similar to organizations and were therefore discarded. We then focused on non-geographic communities that have less direct connection to community road-safety, and consequently require

specifically careful testing. Ultimately, 38 subjects came from geographic communities, and 94 from functional non-place communities. Of these, 61 were male, 71 were female. Average age was 30 (range 21–68). The sample included cities, community villages, agricultural villages and kibbutzim from all areas of Israel, and non-place communities such as motorcyclists, vegetarians, cyclists, students, basketball players, and dancers.

3.1.2. Procedure

Based on the five main themes that emerged in Study 1, five road safety-climate items were developed (see Table 2). We tested the reliability of the scale and then checked for its face validity, i.e. the transparency or relevance of the scale for participants from the target population (Holden, 2010). We tested the relevance of the items in a variety geographical and non-place communities by counting the frequency of irrelevant reports in responses. We also tested variability of the scale across communities.

3.1.3. Tools

The scale included five items (see Table 2) on a 5-point Likert scale ranging from “completely agree” – 5, to “completely disagree” – 1. “Not relevant” was included to indicate which items were irrelevant. Cronbach-Alpha score for the scale was .90, indicating acceptable levels of reliability.

3.2. Results

Of the participants, 83% found the scale relevant to their community, while the other 17% found most of the items irrelevant. Members of geographic communities reported high relevance (see Table 2). Only 3% of these participants found all the items irrelevant, but in most cases frequency of irrelevance was less than 10%. Conversely, in functional communities, 22% of participants found the entire scale irrelevant, and in most items frequency of irrelevance was 30–40%, i.e. lower than in geographical communities. However, it should be noted that even in functional communities most participants found that all scales and items were relevant.

All items in the scale demonstrated similar levels of relevance, except for “In my community, members who act to improve road safety are appreciated by other members”. Overall, 37% of participants reported that this item was irrelevant. Here again, more functional-community members (46%) rejected the item than those from geographic-communities (16%).

However, in some functional communities the road-safety issue does emerge. In order to understand the relevant common denominator, we analyzed and categorized the functional communities in our sample into groups. We found four groups of functional communities in which the road safety emerges. They all have the same geographic location. The issue also emerged in communities from the same sectors, namely: immigrants from Russia and Ethiopia, Baptists, Druze, Arabs, religion communities etc., frequently living

in the same geographical area (generally for easier access to places of worship). Students also reported that road safety issues emerge in their communities. The third category included road sports (cyclists, motorcyclists, drivers, etc.). The fourth category comprised youth groups meeting in specific locations which are exposed to road safety risks in their activities.

Average level of the community road-safety climate scale was 3.42 (SD = .97) for all participants. This indicates reasonable variance across the 5-point Likert scale. We found no significant difference or influence of other demographic variables on the scores. There is no significant correlation between the age of the participants and their scores ($r = .12$, n.s.), or between genders ($F = .007$, n.s.). Other demographic variables also had no significant influence on the scale. Thus, it seems that variability in road safety climate does not derive from individual-level differences among participants.

3.3. Discussion

We found high levels of reliability, and most of the participants reported that the scale is relevant to the life in their community, although the road safety-climate scale is demonstrably more relevant to geographical than to functional communities.

We found relationship to road safety only in functional communities in the same geographic location who share road risks while driving, walking or riding in that location (sector-based communities, students, road sport, youth groups). We found no relationship to road safety in other functional communities (dancers, musicians, gamers, artists, literature fans, etc.), or in communities involved in health and nutrition issues. The fact that evidence of traffic safety climate in non-geographic communities was found to be related to geographic connections among these communities is aligned with the collective sense-making process in organizations (Luria, 2008a,b; Weick et al., 2005; Zohar and Tenne-Gazit, 2008). It is possible that geographical proximity helps members of communities to make sense of their environment in a bottom-up peer-to-peer process that helps to give meaning to top-down processes such as formal reward or punishment, and investment in infrastructure.

4. General discussion

The study provides qualitative and quantitative evidence for the existence of road-safety climate in communities. It also introduces a new level of analysis that may have influence on safety behavior. Analysis at the community level provides additional information about safety-related issues. Applying our results to the *reference shift consensus model* (Chan, 1998) allows comparison between community-level climate and other levels such as organizational-level climate. Chan's (1998) model suggests that individuals have different climate perceptions of different level of analysis (e.g. community, organization, department) and that the perception of

Table 2
Community safety climate face validity test: Percentage of Study 2 participants that found the items of the road safety community climate scale as not relevant to their community life (divided by community type).

Item	All sample	Geographical communities	Functional communities
1. Road safety is an important topic in our community	28	8	36
2. My community publicizes information regarding road safety	32	11	40
3. Our community members are expected to follow road safety rules	23	8	29
4. In my community we tend to comment to a member who doesn't follow road safety rules	24	3	32
5. Members who try to improve road safety receive recognition and praise from the community	37	16	46
Total scale	17	3	22

Note: The goal of this analysis was to check the face validity of the community road-safety scale. The low percentage of participants who found the item irrelevant indicates high face validity.

the same individual regarding different levels of analysis can be measured. For example, using Chan's model, previous safety-climate research found significant differences between group (department) level climate and organizational-level climate (Zohar and Luria, 2005, 2010). Members of a community may also belong to other organizations, and their perceptions according to different collective structures can be aggregated. Our results suggest that measuring community safety climate provides additional information that, together with existing measures of safety climate at organization and group levels, can help in predicting behavior.

To the best of our knowledge, no previous studies have yet measured climate at the community level. A community is unique in that its members may work in different organizations and, conversely, that workers in the same organization may belong to different communities. We hope that our study will introduce the field of community research to safety researchers, because communities can perhaps offer other channels for influencing road safety.

4.1. Limitations and suggestions for future studies

Our studies were based on convenience sampling methods, and included a small number of community members from different communities in the same country. Community road-safety climate should be examined with larger samples from different countries. Furthermore, in order to capture the level of homogeneity in climate perceptions and to understand the level of heterogeneity between community members based on their demographic, it would be advantageous to sample individuals from the same community. Girasek (2012, 2013) found differences in safety attitudes between men and woman of the same nationality. It is possible that such differences will also be found within communities. Collecting representative samples of members of target communities would allow inter-community comparisons in future research.

Our quantitative scale needs further validation and development. We believe that the first step should be to test the scale at the community level and sample members from similar communities, thus allowing for homogeneity and demonstrating whether strong climate emerges in communities. It is also important to test the scale's predictive validity and to correlate the scores with road accidents, violations and road-related injuries. We used a short scale, assuming that the five themes that emerged in Study 1 would capture a global concept aligned with a single global factor (Griffin and Neal, 2000; Zohar and Luria 2005, 2010). However, a more extensive scale might improve the measure.

The consistent differences between functional and geographical communities in regard to road-safety climate may indicate that **type** of community is a boundary condition for validity of the scale.

The informal community differs from the formal organization. It is important to examine whether a similar nomological network of correlations with other variables exists between road safety climate at the community and organizational levels; and to test the extended value of community-level perceptions to existing perceptions in predicting road-safety outcomes. The boundaries of community-level influence should also be examined since they may be wider than the geographic boundaries. It is possible that because members of geographic communities also behave safely when traveling outside their neighborhood, they influence those living further away. Furthermore some functional communities (for example students) may also have a wider effect on road safety because they are scattered over a wider geographic area.

4.2. Implications

A community-level road-safety climate scale can help to evaluate large groups and indicate specific very large communities with

poor road-safety climate requiring investment of resources for improvement.

It is also essential to test the effectiveness of community-level interventions based on safety-climate theories. Understanding the influence of climate in communities can go beyond prediction of behaviors and outcomes and suggest interventions that have proven effective in organizations (Luria et al., 2008; Zohar, 2002; Zohar and Luria, 2003).

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