The Effects of Communication Channels of Victim Offender Mediation on Cooperation Orientation and Outcome Satisfaction

Alex Schapowal (s2583895)

University of Twente

BSc Psychology, M12 Thesis PSY (2022-2A)

Bachelor Thesis

First supervisor: Florian Bonensteffen

Second supervisor: Dr. Sven Zebel

Abstract

An emerging alternative for the restorative justice practice victim offender mediation (VOM) comes in the form of computer-based-communication (CBC), which exchanges the process of a VOM from its typical face-to-face (FTF) into a video-conferencing environment. Based on the difference between the communication channels and presentation of non-verbal cues of the former VOM versions, the paper aims to establish to what extent the two different VOM forms influence participants cooperation orientation towards the other VOM participants, consisting of the level of mutual benefit, the perception of the opposite party and self-restriction. Additionally, this study tested to what extent cooperation orientation affects the participants satisfaction and attitude towards VOMs in FTF VOM and CBC VOM. Furthermore, 75 participants were asked to immerse into either a victim or offender role, then instructed to view simulated recordings of a FTF VOM and a CBC VOM, in which actors played an imaginary VOM scenario, and complete questionnaires, which measured their cooperation orientation towards the opposite VOM member and outcome satisfaction with the VOM. Results depict a positive significant relationship between participant's will for mutual benefit and their satisfaction after witnessing the CBC VOM scenario. Moreover, participant's cooperation orientation increased both after witnessing the FTF VOM scenario and CBC VOM scenario. This paper argues that different forms of VOM can be considered when aiming to increase the cooperative orientation or satisfaction of the VOM procedure for VOM participants.

Keywords: Restorative Justice, Victim Offender Mediation, Face-to-face, Computer-Based-Communication, Communication Channels, Cooperation Orientation, Outcome Satisfaction, Non-verbal Communication,

Introduction

As long as we can think of, conflicts between human beings subsists, which can escalate in offenses or assaults towards the wellbeing or life quality of another person. When a person has become the victim of another in the form of a crime, it is most commonly reported to the executive and justice systems to bring the criminal act to trial, which is the way retributive justice systems try to aim for justice for the integrated groups. Nonetheless, the perpetrator of these penal offenses may cause devastating circumstances and traumatic consequences for the aggrieved party leading to emotional damages, which are not as easily remedied by the justice system (Eisenberg, 2015). The circumstances and motives of the offender are often not presented to the victims in detail to gain an understanding of their intentions.

In order to meet the needs of those who were affected by the consequences of a crime, restorative justice practices and programmes come into play, which focus on the repercussions the act of the crime brings upon the incorporated parties, like offenders, victims and invested relatives by establishing intercommunion of named parties and thus enhancing the ability to empathize the perspectives of one another, creating an opportunity for mutual understanding and emotional and physical redemption (Menkel-Meadow, 2007). One of the most researched practices of restorative justice, with a strong and positive scientific foundation, comes in the form of victim offender mediation, abbreviated VOM, which shows prolific results in effectiveness for victims to recover from possible emotional or psychological damages and for offenders to revert to communal relationships, by straining for redemption of their misdemeanours (Dhami, 2012; Hansen & Umbreit, 2018).

The procedure of VOM contains typically three different parties, which are the victims, offenders, and a neutral mediator, and embodies a secure environment, in which all actors can discuss openly about the crime, following mischiefs and approaches to restore misconduct and receive forgiveness (Hansen, & Umbreit, 2018). In more detail, the process of a VOM starts with the mediator building contact to both the victim and offender of a crime case and makes sure that both tenants want to participate in the mediation by choice and all regulations for participation are adhered to. Following, the mediator establishes a relation to the victim and offender and becomes acquainted with both sides, their aspirations for the mediation and defines how the mediated session is going to proceed. Thirdly, the mediation session, in which victim and offender meet each other with the mediator, gives the possibility

for the parties to present their side of the story, filling knowledge gaps, and opening the possibility to conclude into arrangements (Hansen & Umbreit, 2018). Lastly, after successful mediation, the mediator checks on the participants about their wellbeing and how it went along with the agreement made in the mediated session.

During the Covid-19 pandemic an alternative for the physical meetings of VOM, which were not possible at that time because of the pandemic's regulation, was presented in digital restorative services and shifted the face-to-face meeting in an online environment via video calling. The article of Surva (2022) discusses the implementation of digitalisation of restorative justice in European countries and the associated risks and opportunities. The article concludes that online forms of restorative justice may show improvements when it comes to cost savings due to axed travel cost or a possibility for increased quantity of mediation (Surva, 2022). Nonetheless, Surva mainly argues against the implementation of digital services because it shows no increase in effectiveness and online practices require a greater amount of participant's and facilitator's involvement with the process to keep quality standards at a norm. Without this involvement digital forms of restorative justice quality do seem to deplete during mediation processes (Surva, 2022). Additionally, the flow of the meetings is susceptible to technical restrictions and thus also decreasing nonverbal communication between parties (Surva, 2022). Supporting previous findings, comes the qualitative study of Bonensteffen et al. (2022), introducing the term Computer-based Communication abbreviated CBC, which argues that CBC VOM might offer participants advantages such as a greater feeling of safety, decreased levels of perceived stress due to the established distance towards the offender. Furthermore, the possibility is presented to engage in VOM when a physical meeting between the victim and offender is not possible or easily organized due to personal or practical reasons like infeasible travel costs or local displacements (Bonensteffen et al., 2022). Therefore, CBC VOM provides an alternative to the traditional in-person VOM for participants, who are not capable of moving a large distance to engage in the in-person meeting due to financial or physical reasons or would preferably choose to schedule a CBC VOM session. Despite the presented arguments for CBC VOM, conducting a VOM in an online environment contains drawbacks, which should be accounted for. The limited representation of the opposite party reduces how references to the general context can be incorporated by the participants (Bonensteffen et al., 2022). Moreover, Bonesteffen et al., (2022) examine that management of emotional reactions becomes harder for the mediator to control and prevention of disruptions is not as easily governed because the mediator cannot be

present at both participants physical locations. Additionally, due to the premises of the online environment it is predisposed to malfunction of hardware or loss of internet connection (Bonensteffen et al., 2022) Lastly, Bonensteffen et al. (2022) presents the views of VOM participants on possible disadvantages for CBC based VOM and according to those opinions the largest detriment is that the quality of interpreting non-verbal cues, like gesture or body language, of the other person is more difficult than seeing the participants in-person, and thus construing the emotions during the mediation is aggravated.

Taking all this into consideration, the problem occurs that both the traditional face-to-face and CBC VOM procedure influence the participating party's perception of VOM and the other participants included into the process. The question rises whether and when one form of VOM brings a more satisfying experience or is a more effective method in increasing participant's involvement in the VOM with the other participants than the other. Despite existing work on the perception of both the face-to-face and CBC form of VOMs, it is not established how these forms may interact with the relation to the opposite party of the VOM and how these forms may restrict or enhance collaboration. This research aims to examine whether participants will acquire a higher satisfaction with a VOM outcome depending on the form of the VOM, and how cooperative attitudes between the participants influences their overall satisfaction and is influenced by the VOM forms respectively. Thus, the question is asked to what extent are digital forms of VOM capable to provide a valuable alternative to existing face-to-face VOM that establish a meaningful dialogue between victims and offenders.

Due to the nature of CBC VOM shows less nonverbal communication in comparison with the traditional practice of face to face VOM, thus decreasing the number of mediums, through which VOM participants can express themselves, and that the quality of the conversation and understanding between the parties might worsen. Koudenburg et al. (2017) argue in their study that positive relations between persons are being determined by the rate and substance of social interactions, and that these are made of two aspects, namely the conversational form and conversational flow. The former incorporates the idea of the objective circumstances of the conversation and the latter being the subjective perception of the conversation, which is influenced by the quality of turn taking, response latencies and the number of interruptions (Koudenburg et al., 2017). Furthermore, the nonverbal behaviour shown in conversations like stances or gesture help to establish a perception of the other and

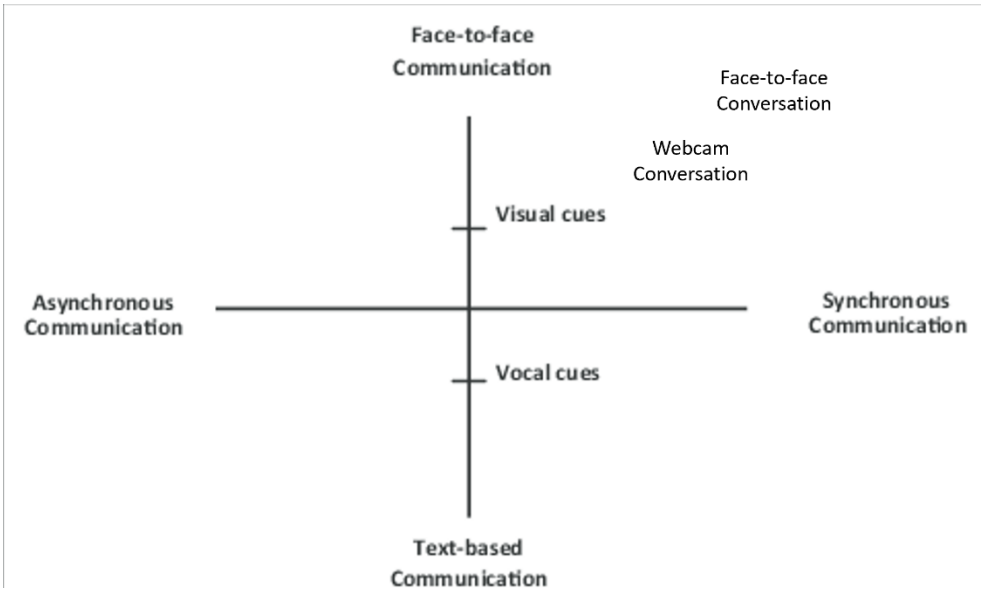
that shorter breaks in between the turn taking enhances the understanding between the parties, but larger periods decrease the trustworthiness of conversation members (Koudenburg et al., 2017). Koudenburg et al. (2017) mention that communication is one of the most important tools for people to interact with others, and even though periods of silence might be necessary for a conversation, discrepancies caused by technical errors do decrease the conversational flow. More effects of nonverbal behaviour on the conversation are that it coordinates parties in the social interactions and with a better representation of the nonverbal behaviour the flow of the conversation can be better retained after a disruption occurred (Koudenburg et al., 2017). Moreover, the same study mentions that CBC VOM shows less nonverbal communication than face-to-face VOM (Koudenberg et al., 207). Furthermore, the meta-analysis of Baltes at al. (2002) shows results that Online videoconferencing shows synchronous nonverbal behaviour, although to a lesser degree than face-to-face VOM and thus, poorer communication quality is presented (Baltes et al., 2002). Therefore, due to the fewer nonverbal cues, it is suggestible that in CBC VOM a higher risk for less conversational flow is established and thus the perception of the other party, mutual understanding, and re-construction of the flow after interruptions are more negatively influenced than the traditional face-to-face form of VOM.

The lower level of perceived nonverbal communication and its detriments do also have influence on the attitude and level of cooperation of the members in the mediation. Additional research from Boone and Buck (2003) suggests that nonverbal communication is a determining variable for cooperative behaviour towards others. The researchers define cooperative behaviour in terms of how well a party can express their emotions and inherit intentions to another party, and the perceived trustworthiness one holds of another person, which are communicated through nonverbal behaviour (Boone & Buck, 2003). In their study, Boone and Buck (2003) examine that participants in a negotiation show lower levels of cooperation when they are not allowed to meet interpersonally.

Taking the aspect of cooperation in communication from a different standpoint into account, Swaab et al. (2012) present their model of communication orientation, which argues that the satisfaction and effectiveness of a communication process depends on the already existing orientation the participants have towards the other party. The orientation of people participating in social interactions greatly influences the level of information sharing and implementation, which is a preceding aspect for the effectiveness in the communication for

establishing comprehension, problem-solving behaviour, and a mutual ground (De Dreu et al., 2008; Krauss & Fussel, 1990). These orientations can range from a cooperative orientation, intention to share information and expertise for mutual benefit of both parties, to a noncooperative orientation, withholding information and not accepting ideas or information from the other party to maximize self-gain (Swaab et al., 2012). Moreover, the communication orientation model contends that the existing communication channels, such as synchronicity and visual and vocal cues, influence the communication outcome between parties either positively or negatively, depending on their pre-existing cooperation orientation (Swaab et al., 2012) Higher communication channels might enhance the trust, which is established between parties, but reduction of communication channels could also lower the level of competitiveness in social interactions (Swaab et al., 2012). Therefore, Swaab et al. (2012) examine that richer forms of communication channels determine a positive effect on negotiation outcomes for communicators, who have a neutral orientation towards the other party because the higher communication channels hone the possibility to recognize the orientation of the other party and exchange their interests and goals. Nonetheless, results of Swaab et al. (2012) present support that the overall communication orientation is higher in negotiations with higher forms of communication channels and synchronicity but that this improvement is only present for communicators with a neutral orientation. Communicators with a non-cooperative or cooperative orientation do not show a higher quality of communication outcomes (Swaab et al., 2012) Reason for the not existing positive effect for cooperative communicators can be explained that through the pre-existing positive relation between parties do already have a higher level of trust and think favourable towards their opposite and therefore do not rely on communication channels to establish rapport (Swaab et al., 2012) Furthermore, participants with a non-cooperative communication orientation towards the other party still acquired positive results, when communication channels were decreased or removed to a minimum (Swaab et al., 2012). Because of the reason that face-to-face communication contains a higher level of communication channels and synchronicity than webcam conversations, depicted in figure 1, the quality of the communication outcomes depends on the communication orientation of participants and neutrally oriented participants are likely to receive more positive results in face-to-face conversations than CBC communication. On the other hand, participants with a non-cooperative orientation will experience more satisfying outcomes of a conversation in webcam conversations than face-to-face conversations, while cooperative participants will not encounter a difference between the separate communication forms.

Figure 1. Two-dimensional model of communication channels.



Furthermore, to get a general idea how these circumstances influence the experience of the parties participating in a VOM, the satisfaction associated with the process and outcomes of a VOM is followingly conceptualised. Hansen & Umbreit incorporate in their 2018 work different reasons and signs for higher satisfaction after VOM participation. Firstly, recommendation of the VOM practice from the victims to friends and family can be interpreted as a form of satisfaction with the practice. Additionally, Hansen & Umbreit (2018) point out three separate predictor variables for victim satisfaction in VOM, which are feelings towards the mediator proficiency and their skills to steer the mediation, the victim conceiving the reparative agreements between the parties as fair, and a desire to meet their offender (Hansen & Umbreit, 2018). Moreover, it is stated that the VOM is perceived as fairer for victims as also for offenders, if an apology is included into the process (Hansen & Umbreit, 2018). Concerning the offender's satisfaction in a VOM, they were more satisfied when they perceived the VOM process as fairer. Statements of offender in their study incorporated that the offenders had the chance to show empathy towards the victims, have a chance to explain themselves, and use the conversation to reflect and realize the consequences of their actions on other people (Hansen & Umbreit, 2018). Along with previous ways to establish satisfaction for VOM participants, Bolivar et al. in 2015 argue that part of the satisfaction stemming from a VOM process is about "psychosocial benefit" for the participants, releasing a hunch of feeling better than before the mediation, and receiving a sense of redemption for the caused harm (Bolivar et al., 2015)

Lastly, to reform the research question, whether and to what extent CBC VOM a valuable alternative to the traditional FTF VOM approach is, it is being tested if participants' cooperation orientation towards the other VOM party does affect the outcome satisfaction of the participants. Considering the findings from Swaab et al. in 2012, this paper hypothesises that participants with a low cooperation orientation towards the other VOM attendee will have greater satisfaction in their VOM when communication channels are low, thus pre-existing cooperation orientation having a negative effect on outcome satisfaction in the CBC condition, while a positive effect of cooperation orientation on outcome satisfaction is expected when participants partake in face-to-face VOM, containing more communication channels. Being able to determine whether a specific VOM modality is better suited for VOM participants depending on their cooperation orientation, might enhance the experience for those participants and ultimately make the VOM more effective and satisfactory.
Additionally, based on previous research from Boone and Buck in 2003, which argues that face-to-face interaction further enhances communicators cooperation, it will be tested whether and how the form of the VOM, either face-to-face or CBC videoconferencing, influences the orientation of the other VOM participant. Therefore, the following hypotheses are established to test the mentioned ideas.

H1: Participant's degree of pre-existing cooperation orientation has a negative effect on their outcome satisfaction when CBC VOM is presented.

H2: Participant's degree of pre-existing cooperation orientation has a positive effect on their outcome satisfaction when FTF VOM is presented.

H3: Cooperation orientation will be positively affected after participants are presented with a FTF VOM but does not increase when CBC VOM is presented.

Method

Participants

Of the initial 224 participants, who partook in the survey, 1.3% (n = 3) have not signed the informed consent leading to the expulsion of these participants from the data set. Additionally, 1.7% (n = 4) of the participants were excluded because they did not meet the inclusion requirement of being older than 18 and 59% (n = 144)) data entries were emitted due to not providing any data for the cooperation orientation and outcome satisfaction questionnaires. To acquire the participants for the survey word of mouth and several websites were used, namely PollPool where it is possible to share one's survey in exchange for partaking in other surveys, SONA an internal recruitment webpage of the University of Twente, where students can attain credits for participating in surveys, and social media sites as Instagram or WhatsApp.

The ultimate group of 75 participants consisted of *22* males with the age range from *20* to *56* (Mean = *26*; Standard deviation = *8.01*) and of *53* females ranging from the age of 19 to *67* (Mean = *27.1*; Standard deviation = *10.9*). In the data set 68% (n = 51) of the participants had a German nationality, 8% (n = 6) participants were from the Netherlands, while the rest of the sample spreads out across multiple nationalities. Suitable participants were allocated to the two different conditions, the first one was the offender group with 44% (n = 33) of the participants and the second was the victim group with (n= *42)* (*56*%) participants. The University of Twente BMS ethical review of the domain humanities and social sciences had ethically approved the survey (ethics number: 230363).

Design & Procedure

The presented study followed a 2x2 design with one between-subject factor (victim versus offender), which is not of concern for the analyses applied in this paper, and one within-subject factor (face-to-face mediation versus online video-conferencing mediation). This study utilized a pre-measure of cooperation orientation and the within subject factor of the presentation form of the victim offender mediation as independent variables. Furthermore, post-measure of the cooperation orientation and outcome satisfaction questionnaires for both within subject factors in this design as dependent variables. This study was part of a collaborative project with several researchers and was conducted using quantitative methodology by applying an online survey published on Sona, an internal website of the

University of Twente. After visiting the survey website by clicking the corresponding link, the participants are presented with the informed consent of the study and must state whether they accept the conditions for partaking in the study, followed by indicating demographic data like age and nationality. Further on, the participants were randomly allocated to one of the between-subject groups, namely the offender or victim group. Furthermore, both groups are presented with an explanation of the process of a victim offender mediation and then a text-based crime scenario from the point of view of their condition group (See Appendix C to D). At this time, the participants are asked to fill out questionnaires added from fellow research members, among which the cooperation orientation towards victim/offender is. In the next phase of the survey, the participants were randomly allocated to witnessed one of the first simulated videos displaying the process of a victim offender mediation, either in a face-to-face or video conference environment. The roles and actors remained consistent in both videos. Followed by the view of the first video, participants are again asked to answer the cooperation orientation questionnaire and additionally the outcome satisfaction form. The process repeated by presenting the opposite video to the participants and displayed the last measure for the cooperation towards victim/offender and outcome satisfaction, followed by control variables, the participants were asked to answer. Lastly, they were presented with a debrief and the objective of the study is explained. The total study approximately lasted for 20 to 30 minutes.

Materials &Measurements

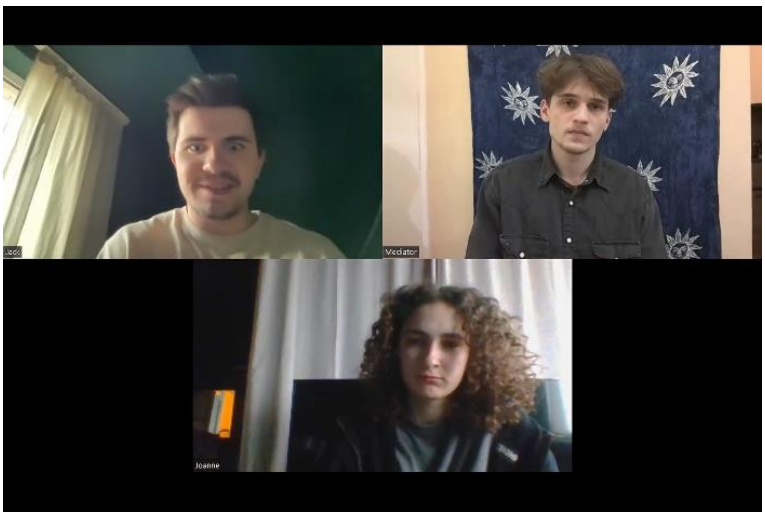
Victim Offender Mediation Recordings

For the presentation of a face-to-face and computer-based victim offender mediation, the researchers hired actors in their apprenticeship of the IAF (*Internationale Akademie für Filmschauspiel*), stationed in Cologne Germany, to record a video of a simulated VOM scenario, in which two actors and one researcher played fictional characters of a victim, offender (See Appendix C to D) and mediator. Furthermore, roles of the fictitious characters, the actors portraying them, and the dialogue stay consistently the same for both scenes. In the videos a case of a burglary is presented, in which the offender explained their side of the offense and the victim narrated the consequences and damages caused by the offender, while the mediator acted as a guidance, asked questions, and initialised the conversation. At the end of the videos, the offender makes a sincere apology towards the victim, who accepts it. The video displaying the face-to-face mediation has a total runtime of 3 minutes and 36 seconds and the recording of the video conference a length of 3 minutes and 57 seconds. Differences

in length between the two videos stemmed from minor variations in the dialogue without changing the gist of the script. For the computer-based victim offender mediation, the video conferencing application Zoom (Version: 5.13.11 (13434)) was used. Both actors, who participated during the recording of the mediation scenarios, were given compensation for their occupation in this study.

Figure 2. Screenshot of the face-to-face VOM presented to the participants.

Figure 3. Screenshot of the computer based VOM presented to the participants.



Cooperation Orientation Pre-Measure

To measure the cooperation orientation of the participants towards the other member of the simulated mediation a questionnaire of 10 items was created by the researchers and formulated for both the victim and the offender condition (see Appendix A & Appendix B).

Participants indicated their answers on a 5-point Likert scale (1 = Very Unrelatable to 5 = Very Relatable). The items of the questionnaires were created and based on the conceptualization of cooperation orientation in the articles of Boone & Buck (2003), in which cooperation is declared as being composed from the perceived trustworthiness of the opposite side and how clear the participant is able to express their emotions, and Swaab et al. (2012), taking into account how willingly participants are to share and apply information to gain a mutual benefit for themselves and the other versus aiming to maximise self-gain by withholding or not accepting information with the other party. After conducting Factor analysis, three latent factors with eigenvalues larger than 1 explained the most variance for the questionnaire. Therefore, three subscales are created, the first one showed a factor loading of 2.45 explaining 25% of the total variance, contained five items regarding the level of mutual benefit the participants present with example statements like "In a disagreement I would establish common ground and work towards a resolution that benefits everyone involved." and "When working on a task with the victim/offender, I communicate my thoughts and ideas well.", showing an Cronbach's alpha value of *.78.* Secondly, the next subscale had a factor loading of 1.79 explaining 18% of the variance, with two items, which covered the perception of the other party, with items like "I perceive the victim/offender as trustworthy." And "I would express appreciation and gratitude towards the victim/offender for their contributions and efforts.", having a Cronbach's alpha of *.63*. Lastly, the third subscale contained a factor loading of 1.48 explaining 15% of the total variance and was about self-restriction for the sake of the other covering three items, which were "I would willingly help the victim/offender with their work, even if it means sacrificing my own time and/or resources." and "I would refrain my own interest or desires for the sake of the victim/offender." and displayed a Cronbach's alpha of *.79*.

Cooperation Orientation CBC-Measure

Furthermore, the cooperation orientation towards the other party in the victim offender mediation was measured a second time after the participants have witnessed the computer-based mediation scenario. The items and scales stayed consistent with the pre-measure of the cooperation orientation questionnaire. The first scale of mutual benefit between the parties shows a Cronbach's Alpha of .75. Secondly, the scale, which covered the perception of the opposite party in the mediation depicts a Cronbach's Alpha of .71 and the third subscale about self-restriction for the sake of the other party displays an Alpha score of .79.

Cooperation Orientation FTF-Measure

The last cooperation orientation measurement was filled out by the participants after they saw the face-to-face victim offender mediation scenario. The items and scales of the face-to-face measure also stayed equal with the previous measurements of cooperation orientation. The mutual benefit scale scored a Cronbach's Alpha of .77 and the perception of the other party scale showed a reliability of .76. Lastly, the scale containing items about self-restriction for the other's sake scored a Cronbach's Alpha of .8.

Outcome Satisfaction CBC-Measure

The first outcome satisfaction measurement of the participants regarding the simulated computer-based victim offender mediation scene is measured using a 5-point Likert scale (1 – Strongly disagree to 5 – strongly agree) with a total of 5 items (see Appendix C). Factor analysis concluded that the variance is best explained by two latent factors, thus dividing the form in two subscales. The first scale, with a factor loading of 1.64 explaining 33% of the total variance, considered the participants personal satisfaction with the events in the presented videos, which used items like "I am satisfied with the overall result of the imagined mediation." And "It was satisfying to visualize that the offender promises not to repeat his wrongdoing.", presenting a Cronbach's alpha for this scale of *.76.* Followingly, with a factor loading of 1.00 explaining 20% of the variance, the participants attitude towards victim offender mediation was captured by the second subscale, depicted in items like "I would consider a VOM, if I find myself in an applicable situation." and "I would not recommend VOM to a friend." With a Cronbach's alpha of *.5*. Furthermore, a reliability analysis concluded that the complete questionnaire had a Cronbach's alpha score of *.71*, which suggested a workable internal consistency.

Outcome Satisfaction FTF-Measure

Participant's outcome satisfaction was additionally measured after engagement with the face-to-face victim offender mediation scenario. All items and scales were consisted between the two outcome satisfaction measurements. The scale incorporating the personal satisfaction with the presented victim offender mediation depicted a Cronbach's Alpha of .78. Furthermore, the second scale measuring the attitude of the participants towards victim

offender mediation depicted a score of .45 for Cronbach's Alpha construing a lower internal reliability.

Data Analysis

The statistical program RStudio (Ver. 2023.03.0+386) was used to process and analyse the dataset, utilizing the packages "rstatix" (Kassambara, 2023), "dplyr" (Wickham et al., 2023), "Hmisc" (Harrel Jr, 2023), "psych" (Revelle, 2017), "janitor" (Firke, 2023), "mirt" (Chalmers, 2012), "CCT" (Willse, 2018), "moments" (Komsta & Novomestky, 2022), "cNORM" (Lenhard et al., 2018), "plyr" (Wickham, 2011), "ggplot2" (Wickham, 2016), "afex" (Singman et al., 2023), "emmans" (Length, 2023), "broom" (Robinson et al., 2023) and "ggpubr" (Kassambara, 2023). The R script can be found in Appendix F.

After the dataset has been important, the first step was to exclude participants, who did not fit the inclusion criteria, which are being older than 18, giving consent to participate and answering the three instances of the cooperation orientation questionnaires and two outcome satisfaction forms. Both questionnaires were tested for their validity by applying a Factor analysis, establishing the number of latent traits measured by the questionnaires and creating subscales for the decisive factors. Additionally, each questionnaire and all their subscales are being tested for their reliability, by accumulating Cronbach's alpha through the Classical Test Theory. Following, mean scores for each answered questionnaire and their subscales were established by dividing the row sums of a form by the total amount of items. Demographic data of the participants is expanded on by calculating standard deviation, minimum and maximum values for each variable. Furthermore, the Spearman intercorrelations between each cooperation orientation and outcome satisfaction subscale were computed.

The first hypothesis that cooperation orientation has a negative effect on outcome satisfaction in the computer-based condition is tested by two multiple linear regression analysis with the three subscales of cooperation orientation as the independent predictors and for the first regression the personal satisfaction, and secondly participant's attitude towards VOM of the outcome satisfaction in the CBC condition as the dependent variable to check whether there is a significantly negative effect. Furthermore, the second hypothesis of this paper, which was cooperation orientation having a positive effect on outcome satisfaction in the face-to-face condition, was also tested for by applying two separate regression analyses, with the three subscales of cooperation orientation as the independent predictor variables and the personal satisfaction with the face-to-face VOM outcome and for the second regression the participant's attitude towards VOM in the face-to-face condition as the dependent variables. Lastly, to test the third hypothesis, that participants cooperation orientation will

increase when they are presented with the face-to-face victim offender mediation and will not increase when the computer-based mediation is shown, a repeated measures T-test is applied for both the face-to-face and computer-based condition to test whether the means of the pre-measure and FTF-measure show a significant positive difference. check whether the means of the pre-measure and the CBC-measure show a significant negative difference in their means.

Results

Overview of the data

The data set contains a total of 75 entries after all participants, who did not meet the inclusion criteria, were removed. The individual questionnaires were separated by their separate subscales and time of and measurement condition. In table 1 the means of the cooperation orientation questionnaires are displayed. There it is shown that the cooperation orientation pre-measure stays the lowest within each of subscales. namely a mean of *3.49* (*SD = 0.83*) for mutual benefit, the perception of the opposite party with a mean score of *2.89* (*SD = 1.09*), and a mean score of *2.68* (*SD = 1.01*), when compared to the CBC and FTF measurements. To the contrary, the FTF measurements of mutual benefit with a mean of *3.83* (*SD = 0.7*), perception of the other party scoring a mean of *3.41* (*SD = 1*) and self-restriction with a mean of *2.98* (*SD = 0.96*), are the highest for the cooperation orientation measurements. The three scales of the CBC measurement of cooperation orientation scores in between the pre-measurements and FTF measurements. Regarding the measurements of the outcome satisfaction, the data shows a slightly higher mean value for the personal satisfaction with the VOM subscale in the FTF condition of *3.73* (*SD = 0.83*), than the CBC measurement with a mean score of *3.61* (*SD = 0.82*). On the other hand, the attitude towards VOM subscale of the outcome satisfaction questionnaire depicts a higher mean in the CBC measurement of *3.*10 (*SD = 0.63*) than the mean value of *3.05* (*SD = 0.68*) of the FTF measurement. Reviewing the correlation of the individual subscales of each questionnaire, it is perceivable that each subscale of the cooperation orientation questionnaire, namely mutual benefit, perception of the other party, and self-restriction, have a significant correlation with each other respectively in and outside the same form of measurement. Additionally, the satisfaction with the VOM subscale of both the CBC and the FTF measurements of outcome satisfaction show a significant correlation, as do the attitude towards VOM subscales of outcome satisfaction in the CBC measure with the FTF measure. Furthermore, satisfaction with the VOM and attitude towards VOM of the outcome satisfaction in the FTF measurement correlate significantly. Moreover, further interesting significant correlation exist with the satisfaction of the VOM subscale of outcome satisfaction in the CBC measure, with all different measurement of the mutual benefit subscale of the cooperation orientation questionnaire in the pre-, CBC and FTF measurement, of which all show a positive effect. Satisfaction of the VOM additionally shows a significant positive correlation with the perception of the opposite party of the cooperation orientation questionnaire in the FTF

condition. Lastly, the satisfaction with the VOM of outcome satisfaction in the FTF condition depicts significant positive correlation with mutual benefit subscale of cooperation orientation in the CBC and FTF condition, but not with the pre-measure of the cooperation orientation questionnaire.

Table 1: Interscale Correlation Matrix including Descriptives of all Variables for each Participant (n = 75).

Main Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1.Pre-measure mutual benefit	*3.49*	*0.83*	-											
2. Pre-measure perception of the opposite party	*2.86*	*1.09*	.45**	-										
3. Pre-measure self-restriction	*2.68*	*1.01*	.66**	.64**	-									
4. CBC-measure mutual benefit	*3.71*	*0.71*	.64**	.49**	.58**	-								
5. CBC-measure perception of the opposite party	*3.27*	*0.96*	.46**	.52**	.49**	.69**	-							
6. CBC-measure self-restriction	*2.91*	*0.97*	.59**	.59**	.68**	.71**	.73**	-						
7. FTF-measure mutual benefit	*3.83*	*0.70*	.67**	.44**	.52**	.87**	.67**	.73**	-					
8. FTF-measure perception of the opposite party	*3.41*	*1.00*	.29*	.55**	.37**	.59**	.76**	.64**	.63**	-				
9. FTF-measure self-restriction	*2.98*	*0.96*	.49**	.61**	.66**	.67**	.69**	.86**	.72**	.69**	-			
10. CBC-measure personal satisfaction with VOM	*3.61*	*0.82*	.28*	.12	.19	.42**	.26*	.25	.27*	.24*	.17	-		
11. CBC-measure attitude towards VOM	*3.1*	*0.63*	-.05	.14	.04	.12	.13	.09	.05	.21	.12	.20	-	
12. FTF-measure personal satisfaction with VOM	*3.73*	*0.83*	.13	.00	.01	.35**	.20	.18	.39**	.29*	.18	.69**	.18	-
13. FTF-measure attitude towards VOM	*3.05*	*0.68*	-.19	-.06	-.21	.05	-.08	-.05	.05	-.01	-.07	-.01	.24*	.24*

Note. ***** = p < .05; ** = p < .01; All scales are measured on a 5. Likert-scale.

Testing the hypotheses

In order to test the first hypothesis that cooperation orientation has a negative effect on outcome satisfaction in CBC VOM, two multiple linear regression analyses were executed with the three subscales of the cooperation orientation questionnaire, respectively mutual benefit, perception of the opposite part and self-restriction, as the independent predictor variables and satisfaction with the VOM of outcome satisfaction in the CBC condition as the dependent variable in the first regression and attitude towards VOM of outcome satisfaction in the CBC condition as a dependent variables in the second regression analysis.

The first multiple linear regression model consists of mutual benefit, perception of the opposite party and self-restriction of the cooperation orientation pre-measures and satisfaction with the VOM of the outcome satisfaction CBC measure, which shows a significant positive effect of the predictor variables on the satisfaction with the VOM dependent variable (R^2 = .11, $F(3, 71) = 3.09$, $p = .03$). In more detail, mutual benefit as a predictor variable on satisfaction with the VOM shows the only significant influence on the dependent variable of the subscales with an increase of 0.32 for a 1 unit increase in mutual benefit adjusting for the other two predictors, with a t-value of 2.11 and a p-value of .03 depicting that the slope for mutual benefit is unequal to 0. Perception of the opposite party shows for every increased unit a decrease of satisfaction with the VOM of -0.01 with a t-value of -0.05 and a p-value of .96. Thirdly, self-restriction does also not show a significant increase in satisfaction with the VOM with an effect of 0.02 for every increased unit of self-restriction, including a t-value of 0.14 and a p-value of .88.

Integrating the attitude towards VOM of the participants as the dependent variable for the second multiple regression analysis with mutual benefit, perception of the opposite party and self-restriction, the regression model shows no significant effect of the independent predictors on the dependent variable (R^2 = .05, $F(3, 71) = 1.44$, $p = .24$). The model indicates for every unit increase in mutual benefit a decrease of -0.19 in the attitude towards VOM with a t-value of -1.56 and a p-value of .12. Furthermore, the perception of the opposite party also shows no significant effect with an increase of 0.11 for attitude towards VOM per unit increase of the perception of the opposite party with a t-value of 1.27 and a p-value of 0.2. The third predictor, self-restriction indicates no significant increase in attitude towards

VOM of 0.06 per unit increase of self-restriction, depicting a t-value of 0.53 and a p-value of .59.

Although the first multiple linear regression on the satisfaction with the VOM subscale of outcome satisfaction in the CBC condition shows significant results as also does the first Spearman regression between the mutual benefit subscale of the cooperation orientation pre-measure and the satisfaction with the VOM of the outcome satisfaction form, the effects and association are positive and therefore the results do not support the first hypothesis that cooperation orientation has a negative effect on outcome satisfaction in the CBC condition.

To test the second hypothesis of this paper that cooperation orientation has a positive effect on the outcome satisfaction for the FTF VOM scenario, two additional multiple linear regression analyses were performed with the pre-measures of the three separate subscales, mutual benefit, perception of the opposite party, and self-restriction, of the cooperation orientation questionnaire pre-measures as the independent predictor variables. For the first regression analysis, satisfaction with the VOM of the outcome satisfaction FTF measurement is used as the dependent variable, with the attitude towards VOM subscale of the outcome satisfaction FTF measure as the dependent variable for the second regression.

The first multiple linear regression model contains the three subscale, mutual benefit, perception of the opposite party and self-restriction, of the cooperation orientation pre-measure as independent predictor variable for the dependent variable of satisfaction with the VOM of the outcome satisfaction questionnaire FTF measure. The regression analysis does not indicate a significant effect of the predictor variables on the satisfaction with the VOM ($R^2 = .02$, $F(3, 71) = 0.44$, $p = .73$). Moreover, with every unit increase of mutual benefit, satisfaction with the VOM increased by 0.18, with a t-value of 1.09 and p-value of .28. Perception of the opposite party does increase the satisfaction of the VOM by 0.03 for every unit increase with a t-value 0.23 and a p-value of .82. Thirdly, satisfaction with the VOM does decrease by -0.09 for every unit increase of self-restriction with a t-value of -0.59 and a p-value of .56.

Furthermore, the second multiple linear regression does include the three cooperation orientation subscale mutual benefit, perception of the opposite party and self-restriction of the pre measurements as independent predictor variables and the participants attitude towards

VOM from the outcome satisfaction FTF measurement as the dependent variable. The regression analysis depicts no significant effects of the predictor variable on the dependent variable of attitude towards VOM ($R^2 = .07$, $F(3, 71) = 1.77$, $p = .16$). Focusing with the individual influences of the separate predictor variables on the attitude of VOM, a 1 unit increase of mutual benefit implies a -0.05 decrease in participants attitude towards VOM in the FTF condition with a t-value of -0.41 and a p-value of .68. Secondly, perception of the opposite party indicates an increase in attitude towards VOM of 0.07 for every additional unit in the subscale of perception of the opposite party with a t-value of 0.75 and a p-value of .45. Lastly, self-restriction as a predictor decreases the attitude towards VOM by -0.18 for every unit increase in self-restriction with a t-value of -1.47 and a p-value of .15. Ultimately, these findings do not support the to be tested hypothesis, that cooperation orientation has a positive effect on outcome satisfaction in a FTF scenario.

To test the third hypothesis that participants' cooperation orientation does increase after witnessing the FTF VOM scenario and does not increase after viewing the CBC VOM scene, it is established whether there is a significant increase in cooperation orientation means in the FTF condition compared to cooperation orientation premeasures and no significant difference in the cooperation orientation means between the CBC and pre-measures. Therefore, paired T-tests were performed, once between the pre- and FTF-measures, and once for the pre- and CBC measures of the three subscales, mutual benefit, perception of the opposite party and self-restriction, of the cooperation orientation questionnaire.

For the first part of the hypothesis that cooperation orientation means do increase from the pre- measure to the FTF-measure, results depict that mutual benefit increases from 3.49 in the pre-measure to 3.83 in the FTF measure and has a t-value of -4.37 ($df = 74$, $p < .05$), indicating a significant difference between the pre and post measurement. The T-test for the perception of the opposite party shows an increase in means from 2.86 in the pre-measure to 3.41 in the FTF-measure with a t-value of -4.79 ($df = 74$, $p < .05$) also alluding a significant difference in means. Thirdly, the self-restriction subscale of the cooperation orientation reveals an increase from the pre-measure mean of 2.68 to 2.98 in the FTF-measure and a t-value of -3.35 ($df = 74$, $p < .05$) with once again a significant difference between the means of the measures.

Finally, the difference in means between the pre- and the CBC-measure of cooperation orientation were established by applying a paired t-test. The T-test for the mutual benefit of cooperation orientation depicts an increase in means from 3.49 in the pre-measure to 3.71 in the CBC-measure, with a t-value of -2.78 ($df = 74$, $p < .05$) suggesting an increase in the mean in the CBC-measure when compared to the pre-measure. Followingly, the T-test for the perception of the opposite party indicates a t-value of -3.64 ($df = 74$, $p < .05$) with an increased mean from 2.86 in the pre-measure to 3.27 in the CBC-measure, which is a significant difference among the means. Lastly, the T-test for the self-restriction subscale of the cooperation orientation questionnaire between the pre- and the CBC measurements shows a t-value of -2.60 ($df = 74$, $p < .05$), also depicting a significant difference in the CBC-measure in relation to the pre-measure with a lower mean of 2.68 in the pre-measure compared to the mean score of 2.98 in the FTF-measurement. Although, there is a significant increase in means for the cooperation orientation perceivable between the pre- and FTF-measures, the performed T-tests also imply a significant increase of all the cooperation orientation subscale means between the pre- and CBC-measure and thus refuting the third hypothesis of this paper.

Discussion

The goal of this research paper was to identify whether the pre-set cooperative orientation of VOM participants towards the other participating party has an effect on the outcome satisfaction with the VOM procedure, and whether the different forms of face-to-face and computer-based victim offender mediation have a positive or negative influence on the cooperation orientation on the participants towards the other attendee respectively. Results depict a positive correlation between participants cooperative orientation and their outcome satisfaction when engaging in the computer-based victim offender mediation scene. Precisely, participants who scored high on the mutual benefit scale of the cooperation orientation questionnaire perceived the presented victim offender mediation as more satisfactory but did not show a significant association for the participants attitude towards VOM in the CBC-measurements. To the contrary, participant's perception of the opposite party in a victim offender mediation or restricting oneself for the sake of the other did neither correlate significantly with the satisfaction with the VOM or the participants attitude towards VOM. Furthermore, the pre-existing degree of cooperation orientation of participants who viewed the FTF VOM scene had no significant influence on their outcome satisfaction. Nonetheless, a significant increase in cooperation orientation means was found between pre-measures of cooperation orientation and both FTF and CBC-measures after participants have witnessed the simulated FTF or CBC VOM scenario respectively.

However, the presented results show no support for the first hypothesis of this paper, that participant's cooperation orientation will have a negative effect on their outcome satisfaction when they were presented with a CBC VOM scenario. Contrary to the hypothesis, one subscale of the cooperation orientation questionnaire, namely mutual benefit, suggested a positive effect on the satisfaction the participants perceived when engaging with the CBC VOM scenario, Nonetheless, the attitude towards VOM is not affected significantly by the participant's cooperation orientation. This positive effect of mutual benefit on the satisfaction with the VOM scene, depicts that there is a difference between the CBC condition and FTF condition, which establishes the relation between cooperation orientation and participants satisfaction with the VOM. Due to the presentation of the CBC VOM scenario, a difference is the emphasis on the faces and facial expressions depicted in the videoconferencing environment. In 2017 Künecke et al. investigated how facial mimicry of nonverbal communication influenced the emotion recognition of the participants. Their results showed

that people might subconsciously, through mimicry, already begun to evaluate the emotions of the perceived person (Künecke et al., 2017). Due to a clearer visualisation of the actors faces in the computer-based victim offender mediation scenario, participants of this paper's research, might have better evaluated the emotions of the actors. Further, Holland et al. found evidence in their 2021 meta-analysis for a positive relation between mimicry and empathy (Holland et al., 2021). This connection is farfetched, but it might be possible that through the more detailed facial representation of the actors in the computer-based victim offender mediation scenario, participants felt additional empathy towards the participating parties through facial mimicry and better evaluation of the feelings, and thus were more satisfied with the VOM scenario when they had a cooperative orientation towards a person, they felt empathic to. Nonetheless, Künecke mentions in her study that mimicry and its effects on emotional recognition were only found when happy facial expressions were shown, not when sad or angry faces were depicted, which is mostly the case for both the recorded face-to-face and computer-based victim offender mediation scenario in this study.

Furthermore, this paper's second hypothesis that cooperation orientation will have a positive effect on participant's outcome satisfaction shows no significant results, thus refuting the original hypothesis. Although these findings show no significant effect, they fit partly in the frame with the work of Swaab et al. (2012) on communication orientation, in which the idea is supported that a high cooperative attitude towards the other participant in a negotiation will not affect the negotiation outcome when communication channels are high, which corresponds with the FTF VOM scenario presenting more communication channels than the CBC VOM scenario. Nonetheless, Swaab et al. (2012) concluded that participants with a neutral orientation towards their negotiation partner achieved more positive negotiation outcomes when communication channels were high, for which this paper's results did not find any evidence.

Additionally, the third hypothesis of this paper that participant's cooperation orientation does increase after engagement with the face-to-face victim offender mediation and shows no effect on cooperation orientation when the computer-based victim offender mediation was presented was refuted. For the first part of this hypothesis, which argues that cooperation orientation will increase after the presentation of the face-to-face victim offender mediation scenario, results indicate that participant's cooperation orientation significantly increased from the moment of the first cooperation orientation measure to the measurement

after they have watched the FTF VOM scenario. On the other hand, a significant increase of means for participant's cooperation orientation was also found between the pre-measure and CBC-measure of cooperation orientation after participants have viewed the computer-based victim offender mediation scenario, which provides evidence to confound the third hypothesis. However, the design of this study did not incorporate a control group to consider that other unobtrusive variables may have influenced the increase in cooperation orientation for both the FTF and CBC conditions. Thus, the possibility that different aspects of the presented scenarios of the victim offender mediation influenced the cooperation orientation of the participants cannot be excluded. Other factors except the presentation form of the victim offender mediation, which might have affected the cooperation orientation of the participants could be the impressions which the participants perceived of the actors in the video. The study of Quigley-Fernandez et al. (1985) supports this claim with their discovery of increased trust of their participants in a negotiation scenario when participants had a good first impression on their negotiation partner. Another idea, which might cause the increase in cooperation orientation of the participants might be the degree to which they felt a sense of similarity towards the actors in the simulated victim offender mediations. This idea is brought up from the study of Fischer (2009), in which they predicted that a perceived sense of similarity does increase participants cooperation in a negotiation situation. Nevertheless, the increase of cooperation orientation cannot exclusively be pinned down to the engagement in either form, computer-base or face-to-face, of a victim offender mediation but it is likely that both the FTF and CBC condition share aspects, which increase participants cooperation orientation.

Nonetheless, this study does show room for improvement and limitations, which might have an influence on the findings of this paper. Firstly, the study design could be a reason for unexpected results, because participants were instructed to engage in the face-to-face victim offender mediation scenario as well as in the computer-based victim offender scenario, the latter form being shown first. This might influence the difference in cooperation orientation of the compared VOM forms, because every participant scored the cooperation orientation items of the face-to-face measurement after they already have seen both scenarios and answer the cooperation orientation questionnaire already after witnessing the computer-based victim offender scenario Looking at the scores of the FTF-measure, one needs to keep in consideration that the beforehand perceived the computer-based victim offender mediation scenario, which might affect the outcomes of the following measurements because a factor present in the computer-based victim offender mediation scenario could influence participants

cooperation orientation or outcome satisfaction, which cannot be easily differentiated. Furthermore, another flaw in the methodology of the study is that no control group was incorporated. This takes the opportunity to allocate the effect on cooperation orientation solely to the presented victim-offender mediation form and does not consider whether different variables might have an influence on the measurement. Moreover, the participants in this study were only asked to put oneself in the position of a victim or an offender and were shown a simulated scenario of a victim offender mediation, instead of being an actual victim, or offender, partaking in a victim offender mediation. Thus, the results of the sample are not precisely representative for people who find themselves in an actual victim offender mediation as one of the participants.

Taking these limitations into consideration, future scientific research should aim to separate groups of participants and design similar studies with the form of the presented VOM form as an in-between variable, so the effects of these presentation forms are clearly differentiated or keep the within-subject factor but randomise the order, in which the VOM forms are presented towards the participants so that an approximately equal amount of participants engage firstly with the face-to-face victim offender mediation and computer-based victim offender mediation. Furthermore, to achieve results, which will be more representative for the population of VOM members, the next step would be to acquire participants, who have already participated once in a VOM, preferably face-to-face VOM and videocall VOM, or take part into a more immersive environment where the participants play an integrated role in a VOM scenario like a roleplay, instead of only witnessing a victim offender mediation, in which they are not included. Moreover, additional changes can be applied to the creation of the measurement materials to optimise the materials validity in the factors it gauges. Besides methodology, future research can aim to examine further possible variables which might have an influence on the experience and satisfaction of victim offender mediation members perceive in the different forms of VOMs and what further differences face-to-face and computer-based victim offender mediation might contain affecting the participants. An interesting area for deeper investigation into the area of nonverbal behaviour, which protrudes in the presentation of the simulated victim offender mediation videos, is how exactly the perception of only facial nonverbal behaviour differs when compared with shown nonverbal behaviour including the whole-body language like gestures and stances. Due to the nature of how the scenarios were filmed, the computer-based victim offender mediation scenario depicts the participant’s faces clearly from the front, which might enhance the perception of the emotions the actors reflected and might also stimulate facial mimicry, so

participants in this study had it easier to recognize presented emotions, while the face-to-face video has a wider angle to capture all the participants and their whole bodies in the tape, but thus also having a greater distance to the actors faces.

Conclusion

Overall, the study contributed to answer the question whether different forms of victim offender mediation have influence on the experience and attitude of the participants and establishes the idea that personal satisfaction with a VOM is influenced by cooperation orientation in the form of working towards mutual benefit for all parties, when the victim offender mediation is conducted by video calling. Furthermore, this correlation is exclusive to the computer-based victim offender mediation, therefore it is likely that the perception of the computer-based victim offender mediation contains an undetermined variable, which moderates the relation between cooperation orientation's mutual benefit and satisfaction with the VOM and is not apparent in the face-to-face victim offender mediation scenario. Furthermore, it is perceivable that computer-based victim offender mediation shows more and stronger positive associations with the satisfaction with the VOM and attitude towards VOM of participants than face-to-face. Nevertheless, the face-to-face victim offender mediation shows positive effect on participants satisfaction with the VOM but was not determined as significant in this study. Additionally, results suggest that the participation in a face-to-face or computer-based victim offender mediation contains a shared variable, which does increase the level of cooperation orientation, precisely participants will for mutual benefit, the perception of the opposite party and self-restriction for the sake of the other party. This increase in cooperation orientation is slightly higher for the face-to-face victim offender mediation than the computer-based victim offender mediation, which leads to the assumption that victim offender mediations conducted in a face-to-face environment are most efficient in terms of increasing participants cooperation orientation towards the other attendee. Considering practical implications for these contributions, practitioners in the field of restorative justice and mediator guiding and planning the processes of a victim offender mediation can try to enhance the cooperation of the victims and offenders partaking in a mediation by elaborating on the effects of the face-to-face mediation environment. In addition, it might be possible to establish the pre-existing cooperation orientation of the participants of a victim offender mediation to increase the satisfaction of the parties by conducting a victim offender mediation in an online environment like videocall conferences. Furthermore, the presented nonverbal behaviour in the different victim offender mediation forms needs to be considered and further effects of the nonverbal communication by mediation attendees established. Finally, this field of research may advance further by differentiating possible variables, which causes the positive relationship between participants cooperation orientation and outcome satisfaction in a computer-based victim offender mediation environment.

References

Baltes, B. B., Dickson, M. W., Sherman, M. P., Bauer, C. C., & LaGanke, J. S. (2002). Computer-mediated communication and group decision making: A meta-analysis. *Organizational behavior and human decision processes*, *87*(1), 156-179

Bolívar, D., Pelikan, C., & Lemonne, A. (2015). Victims and restorative justice: Towards a comparison. In *Victims and restorative justice* (pp. 172-200). Routledge.

Bonensteffen, F., Zebel, S., & Giebels, E. (2022). Is computer-based communication a valuable addition to victim-offender mediation? A qualitative exploration among victims, offenders and mediators. *Victims & Offenders*, *17*(8), 1173-1195

Boone, R. T., & Buck, R. (2003). Emotional expressivity and trustworthiness: The role of nonverbal behavior in the evolution of cooperation. *Journal of Nonverbal Behavior*, *27*, 163-182.

Chalmers, R.P. (2012). mirt: A Multidimensional Item Response Theory Package for the R Environment. Journal of Statistical Software, 48(6), 1-29. doi:10.18637/jss.v048.i06

De Dreu, C. K., Nijstad, B. A., & Van Knippenberg, D. (2008). Motivated information processing in group judgment and decision making. *Personality and social psychology review*, *12*(1), 22-49.

Dhami, M. K. (2012). Offer and acceptance of apology in victim-offender mediation. *Critical Criminology*, *20*, 45-60.

Eisenberg, A. K. (2015). Criminal infliction of emotional distress. *Michigan Law Review*, 607-662.

Firke, S. (2023). janitor: Simple Tools for Examining and Cleaning Dirty Data. R package version 2.2.0. https://CRAN.R-project.org/package=janitor

Fischer, I. (2009). Friend or foe: subjective expected relative similarity as a determinant of cooperation. *Journal of Experimental Psychology: General*, *138*(3), 341

Hansen, T., & Umbreit, M. (2018). State of knowledge: Four decades of victim-offender mediation research and practice: The evidence. *Conflict Resolution Quarterly*, *36*(2), 99-113.

Harrell Jr, F.E. (2023). Hmisc: Harrell Miscellaneous. R package version 5.0-1. https://CRAN.R-project.org/package=Hmisc

Holland, A. C., O'Connell, G., & Dziobek, I. (2021). Facial mimicry, empathy, and emotion recognition: A meta-analysis of correlations. *Cognition and Emotion*, *35*(1), 150-168.

Kassambara, A. (2023). ggpubr: 'ggplot2' Based Publication Ready Plots. R package version 0.6.0. https://CRAN.R-project.org/package=ggpubr

Kassambara, A.(2023). rstatix: Pipe-Friendly Framework for Basic Statistical Tests. R package version 0.7.2. https://CRAN.R-project.org/package=rstatix

Komsta, L., Novomestky, F. (2022). moments: Moments, Cumulants, Skewness, Kurtosis and Related Tests. R package version 0.14.1. https://CRAN.R-project.org/package=moments

Koudenburg, N., Postmes, T., & Gordijn, E. H. (2017). Beyond content of conversation: The role of conversational form in the emergence and regulation of social structure. *Personality and Social Psychology Review*, *21*(1), 50-71.

Krauss, R. M., & Fussell, S. R. (1990). Mutual knowledge and communicative effectiveness. *Intellectual teamwork: Social and technological foundations of cooperative work*, 111-146.

Künecke, J., Wilhelm, O., & Sommer, W. (2017). Emotion recognition in nonverbal face-to-face communication. *Journal of Nonverbal Behavior*, *41*, 221-238.

Lenhard, A., Lenhard, W., Gary, S. (2018). Continuous Norming (cNORM). The Comprehensive R Network, Package cNORM, available: https://CRAN.R-project.org/package=cNORM

Lenth, R.V. (2023). emmeans: Estimated Marginal Means, aka Least-Squares Means. R package version 1.8.5. https://CRAN.R-project.org/package=emmeansemmeans

Menkel-Meadow, C. (2007). Restorative justice: What is it and does it work?. *Annu. Rev. Law Soc. Sci.*, *3*, 161-187.

Quigley-Fernandez, B., Malkis, F. S., & Tedeschi, J. T. (1985). Effects of first impressions and reliability of promises on trust and cooperation. *British journal of social psychology*, *24*(1), 29-36.

Revelle, W. (2017) psych: Procedures for Personality and Psychological Research, Northwestern University, Evanston, Illinois, USA, https://CRAN.R-project.org/package=psych Version = 1.7.8.

Robinson, D., Hayes, A., Couch, S. (2023). broom: Convert Statistical Objects into Tidy Tibbles. R package version 1.0.4. https://CRAN.R-project.org/package=broom

RPubs - Exploratory Factor Analysis in R. (n.d.). Rpubs.Com. Retrieved April 30th, 2023, from https://rpubs.com/pjmurphy/758265

Singmann, H., Bolker, B., Westfall, J., Aust, F., Ben-Shachar, M. S., (2023). afex: Analysis of Factorial Experiments. R package version 1.3-0. https://CRAN.R-project.org/package=afex

Swaab, R. I., Galinsky, A. D., Medvec, V., & Diermeier, D. A. (2012). The communication orientation model: Explaining the diverse effects of sight, sound, and synchronicity on negotiation and group decision-making outcomes. *Personality and Social Psychology Review*, *16*(1), 25-53

Wickham, H. (n.d.). ggplot2: Elegant Graphics for Data Analysis. Springer-Verlag New York, 2016.

Wickham, H. (2011). The Split-Apply-Combine Strategy for Data Analysis. Journal of Statistical Software, 40(1), 1-29. URL https://www.jstatsoft.org/v40/i01/.

Wickham, H., François, R., Henry, L., Müller, K., Vaughan, D., (2023). dplyr: A Grammar of Data Manipulation. R package version 1.1.2. https://CRAN.R-project.org/package=dplyr

Willse, J.T. (2018). CTT: Classical Test Theory Functions. R package version 2.3.3. https://CRAN.R-project.org/package=CTT

Appendix A

Cooperation towards Victim Questionnaire (Offender condition)

The following section contains items about your cooperative attitude towards the victim. Please indicate how much you relate to the statements below on a scale from 1 (Very Unrelatable) to 5 (Very Relatable) and answer them as honest and precise as possible.

1. I would actively listen to ideas and opinions of the victim during a conversation

2. When working together with the victim, I would be willing to make compromises and concessions

3. In a disagreement I would establish common ground and work towards a resolution that benefits everyone involved

4. I would express appreciation and gratitude towards the victim for their contributions and efforts

5. I would willingly help the victim with their work, even if it means sacrificing my own time and/or resources

6. When working with the victim, I communicate my thoughts and ideas well

7. I am likely to take initiative and take on additional responsibilities when working together with the victim on a task

8. I would refrain my own interests or desires for the sake of the victim

9. I perceive the victim as trustworthy

10. I believe there are two sides to an argument and try to take both views into account

Appendix B

Cooperation towards Offender Questionnaire (Victim condition)

The following section contains items about your cooperative attitude towards the Offender. Please indicate how much you relate to the statements below on a scale from 1 (Very Unrelatable) to 5 (Very Relatable) and answer them as honest and precise as possible.

1. I would actively listen to ideas and opinions of the offender during a conversation

2. When working together with the offender, I would be willing to make compromises and concessions

3. In a disagreement I would establish common ground and work towards a resolution that benefits everyone involved

4. I would express appreciation and gratitude towards the offender for their contributions and efforts

5. I would willingly help the offender with their work, even if it means sacrificing my own time and/or resources

6. When working on a task with the offender, I communicate my thoughts and ideas well

7. I am likely to take initiative and take on additional responsibilities when working together with the offender on a task

8. I would refrain my own interests or desires for the sake of the offender

9. I perceive the offender as trustworthy

10. I believe there are two sides to an argument and try to take both views into account

Appendix C

Outcome Satisfaction Questionnaire

The following statements relate to the imagined mediation result. Please indicate your personal satisfaction with the outcome on a scale from 1 - strongly disagree to 5 - strongly agree.

1. I would consider a VOM, if I find myself in an applicable situation.

2. I am satisfied with the overall result of the imagined mediation.

3. It was satisfying to envision the apology from the offender.

4. I would not recommend VOM to a friend.

5. It was satisfying to visualize that the offender promises not to repeat his wrongdoing.

Appendix D

Character Description (Victim Point of View)

” You (Jack) are a stay-at-home parent in your mid-40s, and you have multiple children. You live in a beautiful, wealthy house, but unfortunately, your home was recently burglarized. The worst part was that the break-in occurred while your children and You were away attending a family funeral. When you returned home, you were shocked to find that your home had been broken into and robbed.

The thieve (Joanne) has taken many valuable items, including some jewellery that was very dear to you. These pieces of jewellery had sentimental value because they reminded you of memories. Losing them was devastating, and you felt emotionally hurt that someone would take something that had so much personal meaning.”

Character Description (Offender Point of View)

“You (Joanne) are in your mid-twenties and have been battling heroin addiction and unemployment. You have been struggling to make enough money to survive as a result of your addiction, and you have turned to illegal activities to support your habit.

Recently, you broke into a strangers (Jack) house alone by climbing through a window with the intention of finding valuable items to sell and make some money. Your main objective was to buy more drugs with the money you made. However, your actions were unlawful and resulted in your detention by law enforcement, you were sentenced to one year in jail.”

Appendix E

Script of the VOM scene

Mediator:

"We are here to discuss the burglary, which took place on the 24th of March at the house of Jill."

"Now, this meeting is not to decide whether Joanne is a good or a bad person. It is to focus about what she has done, and how her behaviour has affected you."

"Hopefully, through this process, we can all help to heal the harm that has been caused."

"Joanne, would you like to tell Jake what happened?"

Joanne:

(*Looks at the ground before talking*)

"Uhm, on the 24th of March, I broke into your house".

"Uhm, I just gotten through a window, knocked on the door to check if anybody was in".

(*Deep breath*)

"I can't remember a lot about it *(deep exhale)*, but I remember going in and taking a jewellery box (…) and I remember putting it into a carrier bag."

(Not knowing what to say, looking to the mediator)

Mediator:

(Professional, making notes during the conversation)

"What were you thinking about at the time, Joanne?"

Joanne:

(*Thinking intensively)*

"Just thinking about to get some money to fund my drug habit. Just wanted to get in and out there quick. Just … I don't know."

Mediator:

(Looking to Jill)

"Do you want to talk about how this has been for you?"

Jill:

"For me the hardest part was that you took my jewellery."

(Shaking her head, using hand while talking)

"You didn't take things that had no emotional value in my house, like the laptops and cameras. You took **all** my jewellery *(getting emotional*), some of it *(sobbing, slightly crying)* things my family have gifted me. These are gone and are irreplaceable. My children and I

were gone half an hour when you were in my house, so I was devastated. Absolutely devasted."

Joanne:

"I'm sorry."

"I know what I say can't really replace any of the things I stole. I just want to apologize. I didn't ever think about the consequences."

Jill:

"I think that's the problem."

Joanne:

"Yeah."

Jill:

"You know, your actions have affected me and my family a lot."

Joanne:

"I do actually think that the time in prison has really helped me to sort myself out. I'm really sorry. If I could replace any of the jewellery, *(stumbling)* I would."

Jill:

(abruptly)
"But you can't."

(Small pause)

Mediator:

"What would make things better for you personally? What would you like to come out of today's meeting?"

Jill:

"Well, I suppose I've had it. Joanne has apologized. She can't make up for what she did, I know that, but you have apologized. I won't give up of what I have lost, but I think…

(Small pause)

Yeah, I think she understands."

Joanne:

"I do."

Mediator:

"Joanne, can you see that the choices that you made have caused harm?"

Joanne:

"Yeah, I do. Yeah, definitely. I just want to get my life back on track and just want to apologize once again for doing what I did."

Appendix F

R Script

```
## "Start the Meeting" - Cooperation and VOM script ##

## Author: Alex Schapowal ##


#install packages

install.packages("rstatix")

install.packages("dplyr")

install.packages("Hmisc")

install.packages("psych")

install.packages("janitor")

install.packages("mirt")

install.packages("CTT")

install.packages("Lambda4") #na

install.packages("moments")

install.packages("cNORM")

install.packages("plyr")

install.packages("ggplot2")

install.packages("afex")

install.packages("emmeans")

install.packages("broom")

install.packages("ggpubr")

install.packages("car")


#load packages
```

```
library(rstatix)

library(broom)

library(ggpubr)

library(plyr)

library(ggplot2)

library(afex)

library(emmeans)

library(dplyr)

library(foreign)

library(tidyverse)

library(psych) #na

library(dplyr)

library(janitor)

library(mirt)

library(CTT)

library(moments)

library(cNORM)

library(Hmisc)

library(readr)

library(car)


# citation of R packages


citation("rstatix")

citation("dplyr")
```

```
citation("Hmisc")

citation("psych")

citation("janitor")

citation("mirt")

citation("CTT")

citation("moments")

citation("cNORM")

citation("plyr")

citation("ggplot2")

citation("afex")

citation("emmeans")

citation("broom")

citation("ggpubr")


# Load Data set

VOM_Raw<- read_csv("C:/Users/ascha/OneDrive/Desktop/M12/Data/wd/"Start the meeting" - The effects of victim-offender mediation_May 9, 2023_09.23.csv")

View(VOM_Raw)


# removing unnecessary columns and excluded questions

VOM_Data <- subset(VOM_Raw, select = -c(StartDate, EndDate, Status, IPAddress, Progress, Finished, RecordedDate, ResponseId, LocationLatitude, LocationLongitude, DistributionChannel, UserLanguage, RecipientEmail, RecipientFirstName, ExternalReference, RecipientLastName, Q_StraightliningCount, Q_StraightliningPercentage, Q_StraightliningQuestions, Q_UnansweredPercentage, Q_UnansweredQuestions))

VOM_Data <- subset(VOM_Data, select = -c(35:38, 80:83))
```

```
VOM_Short <- VOM_Data %>% select(1:20, 39:53, 84:98, 125:145, 158:167, 173:182,
188:204)

# excluding no consents

VOM_Short <- VOM_Short %>% filter(Q182 == "1") ## total of 3 no consents

# excluding participants younger than 18

VOM_Short <- VOM_Short %>% filter(Age >= "18") ## total of 4 younger than 18

# remove datapoints with unanswered questionnaires ## total of 151 removed

VOM_Short <- VOM_Short %>% filter(CoopPre_1 >= 0)

VOM_Short <- VOM_Short %>% filter(CoopCBC_1 >= 0)

VOM_Short <- VOM_Short %>% filter(CoopFTF_1 >= 0)

VOM_Short <- VOM_Short %>% filter(OutSatCBC_1 >= 0)

VOM_Short <- VOM_Short %>% filter(OutSatFTF_1 >= 0)

    ### datasets ###

# create dataset with only item values & demographics

VOM_Essential <- subset(VOM_Short, select = c(3:10, 108:148))

# create offender data set n=33 // not necessary afaik

VOM_Offender <- VOM_Essential %>% filter(Variable == "OFFENDER")
```

```
# create victim data set n=42

VOM_Victim <- VOM_Essential %>% filter(Variable == "VICTIM")


# create dataset with only items

VOM_ItemsCoopPre <- subset(VOM_Essential, select = c(10:19))

VOM_ItemsCoopCBC <- subset(VOM_Essential, select = c(20:29))

VOM_ItemsCoopFTF <- subset(VOM_Essential, select = c(30:39))


VOM_ItemsOutSatCBC <- subset(VOM_Essential, select = c(40:44))

VOM_ItemsOutSatFTF <- subset(VOM_Essential, select = c(45:49))


## recoding the inversed items

VOM_Essential$OutSatCBC_4 <- recode(VOM_Essential$OutSatCBC_4, "1=5; 2=4; 3=3;
4=2; 5=1")

VOM_Essential$OutSatFTF_4 <- recode(VOM_Essential$OutSatFTF_4, "1=5; 2=4; 3=3;
4=2; 5=1")



#creating coop variables

VOM_Short$CoopPre_1 <- VOM_Short$Q188_1

VOM_Short$CoopPre_1[!is.na(VOM_Short$Q199_1)] =
VOM_Short$Q199_1[!is.na(VOM_Short$Q199_1)]

VOM_Short$CoopPre_2 <- VOM_Short$Q188_2
```

```
VOM_Short$CoopPre_2[!is.na(VOM_Short$Q199_2)] =
VOM_Short$Q199_2[!is.na(VOM_Short$Q199_2)]

VOM_Short$CoopPre_3 <- VOM_Short$Q188_3

VOM_Short$CoopPre_3[!is.na(VOM_Short$Q199_3)] =
VOM_Short$Q199_3[!is.na(VOM_Short$Q199_3)]

VOM_Short$CoopPre_4 <- VOM_Short$Q188_4

VOM_Short$CoopPre_4[!is.na(VOM_Short$Q199_4)] =
VOM_Short$Q199_4[!is.na(VOM_Short$Q199_4)]

VOM_Short$CoopPre_5 <- VOM_Short$Q188_5

VOM_Short$CoopPre_5[!is.na(VOM_Short$Q199_5)] =
VOM_Short$Q199_5[!is.na(VOM_Short$Q199_5)]

VOM_Short$CoopPre_6 <- VOM_Short$Q188_6

VOM_Short$CoopPre_6[!is.na(VOM_Short$Q199_6)] =
VOM_Short$Q199_6[!is.na(VOM_Short$Q199_6)]

VOM_Short$CoopPre_7 <- VOM_Short$Q188_7

VOM_Short$CoopPre_7[!is.na(VOM_Short$Q199_7)] =
VOM_Short$Q199_7[!is.na(VOM_Short$Q199_7)]

VOM_Short$CoopPre_8 <- VOM_Short$Q188_8

VOM_Short$CoopPre_8[!is.na(VOM_Short$Q199_8)] =
VOM_Short$Q199_8[!is.na(VOM_Short$Q199_8)]

VOM_Short$CoopPre_9 <- VOM_Short$Q188_9

VOM_Short$CoopPre_9[!is.na(VOM_Short$Q199_9)] =
VOM_Short$Q199_9[!is.na(VOM_Short$Q199_9)]

VOM_Short$CoopPre_10 <- VOM_Short$Q188_10

VOM_Short$CoopPre_10[!is.na(VOM_Short$Q199_10)] =
VOM_Short$Q199_10[!is.na(VOM_Short$Q199_10)]
```

```
VOM_Short$CoopCBC_1 <- VOM_Short$Q250_1

VOM_Short$CoopCBC_1[!is.na(VOM_Short$Q254_1)] =
VOM_Short$Q254_1[!is.na(VOM_Short$Q254_1)]

VOM_Short$CoopCBC_2 <- VOM_Short$Q250_2

VOM_Short$CoopCBC_2[!is.na(VOM_Short$Q254_2)] =
VOM_Short$Q254_2[!is.na(VOM_Short$Q254_2)]

VOM_Short$CoopCBC_3 <- VOM_Short$Q250_3

VOM_Short$CoopCBC_3[!is.na(VOM_Short$Q254_3)] =
VOM_Short$Q254_3[!is.na(VOM_Short$Q254_3)]

VOM_Short$CoopCBC_4 <- VOM_Short$Q250_4

VOM_Short$CoopCBC_4[!is.na(VOM_Short$Q254_4)] =
VOM_Short$Q254_4[!is.na(VOM_Short$Q254_4)]

VOM_Short$CoopCBC_5 <- VOM_Short$Q250_5

VOM_Short$CoopCBC_5[!is.na(VOM_Short$Q254_5)] =
VOM_Short$Q254_5[!is.na(VOM_Short$Q254_5)]

VOM_Short$CoopCBC_6 <- VOM_Short$Q250_6

VOM_Short$CoopCBC_6[!is.na(VOM_Short$Q254_6)] =
VOM_Short$Q254_6[!is.na(VOM_Short$Q254_6)]

VOM_Short$CoopCBC_7 <- VOM_Short$Q250_7

VOM_Short$CoopCBC_7[!is.na(VOM_Short$Q254_7)] =
VOM_Short$Q254_7[!is.na(VOM_Short$Q254_7)]

VOM_Short$CoopCBC_8 <- VOM_Short$Q250_8

VOM_Short$CoopCBC_8[!is.na(VOM_Short$Q254_8)] =
VOM_Short$Q254_8[!is.na(VOM_Short$Q254_8)]

VOM_Short$CoopCBC_9 <- VOM_Short$Q250_9

VOM_Short$CoopCBC_9[!is.na(VOM_Short$Q254_9)] =
VOM_Short$Q254_9[!is.na(VOM_Short$Q254_9)]
```

```
VOM_Short$CoopCBC_10 <- VOM_Short$Q250_10

VOM_Short$CoopCBC_10[!is.na(VOM_Short$Q254_10)] =
VOM_Short$Q254_10[!is.na(VOM_Short$Q254_10)]


VOM_Short$CoopFTF_1 <- VOM_Short$Q252_1

VOM_Short$CoopFTF_1[!is.na(VOM_Short$Q256_1)] =
VOM_Short$Q256_1[!is.na(VOM_Short$Q256_1)]

VOM_Short$CoopFTF_2 <- VOM_Short$Q252_2

VOM_Short$CoopFTF_2[!is.na(VOM_Short$Q256_2)] =
VOM_Short$Q256_2[!is.na(VOM_Short$Q256_2)]

VOM_Short$CoopFTF_3 <- VOM_Short$Q252_3

VOM_Short$CoopFTF_3[!is.na(VOM_Short$Q256_3)] =
VOM_Short$Q256_3[!is.na(VOM_Short$Q256_3)]

VOM_Short$CoopFTF_4 <- VOM_Short$Q252_4

VOM_Short$CoopFTF_4[!is.na(VOM_Short$Q256_4)] =
VOM_Short$Q256_4[!is.na(VOM_Short$Q256_4)]

VOM_Short$CoopFTF_5 <- VOM_Short$Q252_5

VOM_Short$CoopFTF_5[!is.na(VOM_Short$Q256_5)] =
VOM_Short$Q256_5[!is.na(VOM_Short$Q256_5)]

VOM_Short$CoopFTF_6 <- VOM_Short$Q252_6

VOM_Short$CoopFTF_6[!is.na(VOM_Short$Q256_6)] =
VOM_Short$Q256_6[!is.na(VOM_Short$Q256_6)]

VOM_Short$CoopFTF_7 <- VOM_Short$Q252_7

VOM_Short$CoopFTF_7[!is.na(VOM_Short$Q256_7)] =
VOM_Short$Q256_7[!is.na(VOM_Short$Q256_7)]

VOM_Short$CoopFTF_8 <- VOM_Short$Q252_8
```

```
VOM_Short$CoopFTF_8[!is.na(VOM_Short$Q256_8)] =
VOM_Short$Q256_8[!is.na(VOM_Short$Q256_8)]

VOM_Short$CoopFTF_9 <- VOM_Short$Q252_9

VOM_Short$CoopFTF_9[!is.na(VOM_Short$Q256_9)] =
VOM_Short$Q256_9[!is.na(VOM_Short$Q256_9)]

VOM_Short$CoopFTF_10 <- VOM_Short$Q252_10

VOM_Short$CoopFTF_10[!is.na(VOM_Short$Q256_10)] =
VOM_Short$Q256_1[!is.na(VOM_Short$Q256_10)]


VOM_Short$OutSatCBC_1 <- VOM_Short$Q160

VOM_Short$OutSatCBC_2 <- VOM_Short$Q161

VOM_Short$OutSatCBC_3 <- VOM_Short$Q162

VOM_Short$OutSatCBC_4 <- VOM_Short$Q163

VOM_Short$OutSatCBC_5 <- VOM_Short$Q164


VOM_Short$OutSatFTF_1 <- VOM_Short$Q244

VOM_Short$OutSatFTF_2 <- VOM_Short$Q245

VOM_Short$OutSatFTF_3 <- VOM_Short$Q246

VOM_Short$OutSatFTF_4 <- VOM_Short$Q247

VOM_Short$OutSatFTF_5 <- VOM_Short$Q248


VOM_Essential$Condition <- VOM_Essential$Variable


# means of each Questionnaire & Subscales

VOM_Essential$CoopPreMean <- rowMeans(VOM_Essential[10:19], na.rm=TRUE)

VOM_Essential$CoopPreSub1Mean <- rowMeans(SubCoopPre1[1:5], na.rm = TRUE)
```

```
VOM_Essential$CoopPreSub2Mean <- rowMeans(SubCoopPre2[1:2], na.rm = TRUE)

VOM_Essential$CoopPreSub3Mean <- rowMeans(SubCoopPre3[1:3], na.rm = TRUE)


VOM_Essential$CoopCBCMean <- rowMeans(VOM_Essential[20:29], na.rm=TRUE)

VOM_Essential$CoopCBCSub1Mean <- rowMeans(SubCoopCBC1[1:5], na.rm = TRUE)

VOM_Essential$CoopCBCSub2Mean <- rowMeans(SubCoopCBC2[1:2], na.rm = TRUE)

VOM_Essential$CoopCBCSub3Mean <- rowMeans(SubCoopCBC3[1:3], na.rm = TRUE)


VOM_Essential$CoopFTFMean <- rowMeans(VOM_Essential[30:39], na.rm=TRUE)

VOM_Essential$CoopFTFSub1Mean <- rowMeans(SubCoopFTF1[1:5], na.rm = TRUE)

VOM_Essential$CoopFTFSub2Mean <- rowMeans(SubCoopFTF2[1:2], na.rm = TRUE)

VOM_Essential$CoopFTFSub3Mean <- rowMeans(SubCoopFTF3[1:3], na.rm = TRUE)


VOM_Essential$OutSatCBCMean <- rowMeans(VOM_Essential[40:44], na.rm=TRUE)

VOM_Essential$OutSatCBCSub1Mean <- rowMeans(SubOutSatCBC1[1:3], na.rm=TRUE)

VOM_Essential$OutSatCBCSub2Mean <- rowMeans(SubOutSatCBC2[1:2], na.rm=TRUE)


VOM_Essential$OutSatFTFMean <- rowMeans(VOM_Essential[45:49], na.rm=TRUE)

VOM_Essential$OutSatFTFSub1Mean <- rowMeans(SubOutSatFTF1[1:3], na.rm=TRUE)

VOM_Essential$OutSatFTFSub2Mean <- rowMeans(SubOutSatFTF2[1:2], na.rm=TRUE)


## creating the subscales of the questionnares

SubCoop1 <- VOM_ItemsCoop %>% select(1,3,6,7,10)

SubCoop2 <- VOM_ItemsCoop %>% select(4,9)

SubCoop3 <- VOM_ItemsCoop %>% select(2,5,8)
```

```
SubOutSat1 <- VOM_ItemsOutSat %>% select(2,3,5)

SubOutSat2 <- VOM_ItemsOutSat %>% select(1,4)


# Intercorrelation of the subscales


## Cooperation Pre ##

#Sub1 - sub2

cor.test(VOM_Essential$CoopPreSub1Mean, VOM_Essential$CoopPreSub2Mean,

        method = "spearman", exact = FALSE) # rho = 0.45; p < .05


# Sub1 - Sub3

cor.test(VOM_Essential$CoopPreSub1Mean, VOM_Essential$CoopPreSub3Mean,

        method = "spearman", exact = FALSE) # rho = 0.66; p < .05


# Sub2 - Sub3

cor.test(VOM_Essential$CoopPreSub2Mean, VOM_Essential$CoopPreSub3Mean,

        method = "spearman", exact = FALSE) # rho = 0.64; p < .05


# Sub1 - CBC Sub1

cor.test(VOM_Essential$CoopPreSub1Mean, VOM_Essential$CoopCBCSub1Mean,

        method = "spearman", exact = FALSE) # rho = 0.66; p < .05


# Sub 1 - CBC Sub2

cor.test(VOM_Essential$CoopPreSub1Mean, VOM_Essential$CoopCBCSub2Mean,
```

```
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 1 - CBC Sub3
cor.test(VOM_Essential$CoopPreSub1Mean, VOM_Essential$CoopCBCSub3Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 1 - FTF Sub1
cor.test(VOM_Essential$CoopPreSub1Mean, VOM_Essential$CoopFTFSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 1 - FTF Sub2
cor.test(VOM_Essential$CoopPreSub1Mean, VOM_Essential$CoopFTFSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 1 - FTF Sub3
cor.test(VOM_Essential$CoopPreSub1Mean, VOM_Essential$CoopFTFSub3Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 1 - OS CBC Sub1
cor.test(VOM_Essential$CoopPreSub1Mean, VOM_Essential$OutSatCBCSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 1 - OS CBC Sub2
cor.test(VOM_Essential$CoopPreSub1Mean, VOM_Essential$OutSatCBCSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05
```

```
# Sub 1 - OS FTF Sub1
cor.test(VOM_Essential$CoopPreSub1Mean, VOM_Essential$OutSatFTFSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 1 - OS FTF Sub2
cor.test(VOM_Essential$CoopPreSub1Mean, VOM_Essential$OutSatFTFSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 2
# Sub2 - CBC Sub1
cor.test(VOM_Essential$CoopPreSub2Mean, VOM_Essential$CoopCBCSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 2 - CBC Sub2
cor.test(VOM_Essential$CoopPreSub2Mean, VOM_Essential$CoopCBCSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 2 - CBC Sub3
cor.test(VOM_Essential$CoopPreSub2Mean, VOM_Essential$CoopCBCSub3Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 2 - FTF Sub1
cor.test(VOM_Essential$CoopPreSub2Mean, VOM_Essential$CoopFTFSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05
```

```
# Sub 2 - FTF Sub2
cor.test(VOM_Essential$CoopPreSub2Mean, VOM_Essential$CoopFTFSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 2 - FTF Sub3
cor.test(VOM_Essential$CoopPreSub2Mean, VOM_Essential$CoopFTFSub3Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 2 - OS CBC Sub1
cor.test(VOM_Essential$CoopPreSub2Mean, VOM_Essential$OutSatCBCSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 2 - OS CBC Sub2
cor.test(VOM_Essential$CoopPreSub2Mean, VOM_Essential$OutSatCBCSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 2 - OS FTF Sub1
cor.test(VOM_Essential$CoopPreSub2Mean, VOM_Essential$OutSatFTFSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 2 - OS FTF Sub2
cor.test(VOM_Essential$CoopPreSub2Mean, VOM_Essential$OutSatFTFSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05
```

```
##Sub3

# Sub3 - CBC Sub1

cor.test(VOM_Essential$CoopPreSub3Mean, VOM_Essential$CoopCBCSub1Mean,

        method = "spearman", exact = FALSE) # rho = 0.66; p < .05


# Sub 3 - CBC Sub2

cor.test(VOM_Essential$CoopPreSub3Mean, VOM_Essential$CoopCBCSub2Mean,

        method = "spearman", exact = FALSE) # rho = 0.66; p < .05


# Sub 3 - CBC Sub3

cor.test(VOM_Essential$CoopPreSub3Mean, VOM_Essential$CoopCBCSub3Mean,

        method = "spearman", exact = FALSE) # rho = 0.66; p < .05


# Sub 3 - FTF Sub1

cor.test(VOM_Essential$CoopPreSub3Mean, VOM_Essential$CoopFTFSub1Mean,

        method = "spearman", exact = FALSE) # rho = 0.66; p < .05


# Sub 3 - FTF Sub2

cor.test(VOM_Essential$CoopPreSub3Mean, VOM_Essential$CoopFTFSub2Mean,

        method = "spearman", exact = FALSE) # rho = 0.66; p < .05


# Sub 3 - FTF Sub3

cor.test(VOM_Essential$CoopPreSub3Mean, VOM_Essential$CoopFTFSub3Mean,

        method = "spearman", exact = FALSE)
```

```
# Sub 3 - OS CBC Sub1
cor.test(VOM_Essential$CoopPreSub3Mean, VOM_Essential$OutSatCBCSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 3 - OS CBC Sub2
cor.test(VOM_Essential$CoopPreSub3Mean, VOM_Essential$OutSatCBCSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 3 - OS FTF Sub1
cor.test(VOM_Essential$CoopPreSub3Mean, VOM_Essential$OutSatFTFSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05

# Sub 3 - OS FTF Sub2
cor.test(VOM_Essential$CoopPreSub3Mean, VOM_Essential$OutSatFTFSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.66; p < .05



## Cooperation CBC ##
#Sub1 - sub2
cor.test(VOM_Essential$CoopCBCSub1Mean, VOM_Essential$CoopCBCSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.69; p < .05

# Sub1 - Sub3
cor.test(VOM_Essential$CoopCBCSub1Mean, VOM_Essential$CoopCBCSub3Mean,
```

```
        method = "spearman", exact = FALSE) # rho = 0.72; p < .05

# Sub2 - Sub3
cor.test(VOM_Essential$CoopCBCSub2Mean, VOM_Essential$CoopCBCSub3Mean,
        method = "spearman", exact = FALSE) # rho = 0.73; p < .05

#Sub1 - FTF Sub 1
cor.test(VOM_Essential$CoopCBCSub1Mean, VOM_Essential$CoopFTFSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.69; p < .05

#Sub1 - FTF Sub 2
cor.test(VOM_Essential$CoopCBCSub1Mean, VOM_Essential$CoopFTFSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.69; p < .05

#Sub1 - FTF Sub 3
cor.test(VOM_Essential$CoopCBCSub1Mean, VOM_Essential$CoopFTFSub3Mean,
        method = "spearman", exact = FALSE) # rho = 0.69; p < .05

#Sub1 - OS CBC Sub 1
cor.test(VOM_Essential$CoopCBCSub1Mean, VOM_Essential$OutSatCBCSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.69; p < .05

#Sub1 - OS CBC Sub 2
cor.test(VOM_Essential$CoopCBCSub1Mean, VOM_Essential$OutSatCBCSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.69; p < .05
```

```
#Sub1 - OS FTF Sub 1
cor.test(VOM_Essential$CoopCBCSub1Mean, VOM_Essential$OutSatFTFSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.69; p < .05

#Sub1 - OS FTF Sub 2
cor.test(VOM_Essential$CoopCBCSub1Mean, VOM_Essential$OutSatFTFSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.69; p < .05

##Sub 2
# Sub2 - FTF sub1
cor.test(VOM_Essential$CoopCBCSub2Mean, VOM_Essential$CoopFTFSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.73; p < .05

#Sub 2 - FTF sub2
cor.test(VOM_Essential$CoopCBCSub2Mean, VOM_Essential$CoopFTFSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.73; p < .05

#Sub 2 - FTF sub3
cor.test(VOM_Essential$CoopCBCSub2Mean, VOM_Essential$CoopFTFSub3Mean,
        method = "spearman", exact = FALSE) # rho = 0.73; p < .05

#Sub 2 - OS CBC sub1
cor.test(VOM_Essential$CoopCBCSub2Mean, VOM_Essential$OutSatCBCSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.73; p < .05
```

```
#Sub 2 - OS CBC sub2
cor.test(VOM_Essential$CoopCBCSub2Mean, VOM_Essential$OutSatCBCSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.73; p < .05

#Sub 2 - OS FTF sub1
cor.test(VOM_Essential$CoopCBCSub2Mean, VOM_Essential$OutSatFTFSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.73; p < .05

#Sub 2 - OS FTF sub2
cor.test(VOM_Essential$CoopCBCSub2Mean, VOM_Essential$OutSatFTFSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.73; p < .05

##Sub 3
# Sub3 - FTF 1
cor.test(VOM_Essential$CoopCBCSub3Mean, VOM_Essential$CoopFTFSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.73; p < .05

# Sub3 - FTF 2
cor.test(VOM_Essential$CoopCBCSub3Mean, VOM_Essential$CoopFTFSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.73; p < .05

# Sub3 - FTF 3
cor.test(VOM_Essential$CoopCBCSub3Mean, VOM_Essential$CoopFTFSub3Mean,
        method = "spearman", exact = FALSE) # rho = 0.73; p < .05
```

```
# Sub3 - OS CBC 1
cor.test(VOM_Essential$CoopCBCSub3Mean, VOM_Essential$OutSatCBCSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.73; p < .05

# Sub3 - OS CBC 2
cor.test(VOM_Essential$CoopCBCSub3Mean, VOM_Essential$OutSatCBCSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.73; p < .05

# Sub3 - OS FTF 1
cor.test(VOM_Essential$CoopCBCSub3Mean, VOM_Essential$OutSatFTFSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.73; p < .05

# Sub3 - OS FFT 2
cor.test(VOM_Essential$CoopCBCSub3Mean, VOM_Essential$OutSatFTFSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.73; p < .05


## Cooperation FTF ##
#Sub1 - sub2
cor.test(VOM_Essential$CoopFTFSub1Mean, VOM_Essential$CoopFTFSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.63; p < .05

# Sub1 - Sub3
cor.test(VOM_Essential$CoopFTFSub1Mean, VOM_Essential$CoopFTFSub3Mean,
```

```
        method = "spearman", exact = FALSE) # rho = 0.72; p < .05


# Sub2 - Sub3
cor.test(VOM_Essential$CoopFTFSub2Mean, VOM_Essential$CoopFTFSub3Mean,
        method = "spearman", exact = FALSE) # rho = 0.69; p < .05


##Sub 1 -OS CBC 1
cor.test(VOM_Essential$CoopFTFSub1Mean, VOM_Essential$OutSatCBCSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.63; p < .05


#Sub 1 OS CBC 2
cor.test(VOM_Essential$CoopFTFSub1Mean, VOM_Essential$OutSatCBCSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.63; p < .05


#Sub 1 OS FTF 2
cor.test(VOM_Essential$CoopFTFSub1Mean, VOM_Essential$OutSatFTFSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.63; p < .05


#Sub 1 OS FTF 2
cor.test(VOM_Essential$CoopFTFSub1Mean, VOM_Essential$OutSatFTFSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.63; p < .05


##SUb 2 - OS CBC 1
cor.test(VOM_Essential$CoopFTFSub2Mean, VOM_Essential$OutSatCBCSub1Mean,
        method = "spearman", exact = FALSE) # rho = 0.63; p < .05
```

```
#Sub 2 - OS CBC 2

cor.test(VOM_Essential$CoopFTFSub2Mean, VOM_Essential$OutSatCBCSub2Mean,

        method = "spearman", exact = FALSE) # rho = 0.63; p < .05


#Sub 2 - OS FTF 1

cor.test(VOM_Essential$CoopFTFSub2Mean, VOM_Essential$OutSatFTFSub1Mean,

        method = "spearman", exact = FALSE) # rho = 0.63; p < .05


#Sub 2 - OS FTF 2

cor.test(VOM_Essential$CoopFTFSub2Mean, VOM_Essential$OutSatFTFSub2Mean,

        method = "spearman", exact = FALSE) # rho = 0.63; p < .05


## Sub 3 - OS CBC 1

cor.test(VOM_Essential$CoopFTFSub3Mean, VOM_Essential$OutSatCBCSub1Mean,

        method = "spearman", exact = FALSE) # rho = 0.63; p < .05


# Sub 3 - OS CBC 2

cor.test(VOM_Essential$CoopFTFSub3Mean, VOM_Essential$OutSatCBCSub2Mean,

        method = "spearman", exact = FALSE) # rho = 0.63; p < .05


# Sub 3 - OS FTF 1

cor.test(VOM_Essential$CoopFTFSub3Mean, VOM_Essential$OutSatFTFSub1Mean,

        method = "spearman", exact = FALSE) # rho = 0.63; p < .05
```

```
# Sub 3 - OS FTF 2
cor.test(VOM_Essential$CoopFTFSub3Mean, VOM_Essential$OutSatFTFSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.63; p < .05


## Outcome Satisfaction CBC Sub1 - Sub2
cor.test(VOM_Essential$OutSatCBCSub1Mean, VOM_Essential$OutSatCBCSub2Mean,
        method = "spearman", exact = FALSE)

## Outcome Satisfaction CBC Sub1 -FTF Sub1
cor.test(VOM_Essential$OutSatCBCSub1Mean, VOM_Essential$OutSatFTFSub1Mean,
        method = "spearman", exact = FALSE)

## Outcome Satisfaction CBC Sub1 -FTF Sub2
cor.test(VOM_Essential$OutSatCBCSub1Mean, VOM_Essential$OutSatFTFSub2Mean,
        method = "spearman", exact = FALSE)

#Sub 2
## Outcome Satisfaction CBC Sub2 -FTF Sub1
cor.test(VOM_Essential$OutSatCBCSub2Mean, VOM_Essential$OutSatFTFSub1Mean,
        method = "spearman", exact = FALSE)

## Outcome Satisfaction CBC Sub2 -FTF Sub2
cor.test(VOM_Essential$OutSatCBCSub2Mean, VOM_Essential$OutSatFTFSub2Mean,
        method = "spearman", exact = FALSE)
```

```
## Outcome Satisfaction FTF Sub1 - Sub2
cor.test(VOM_Essential$OutSatFTFSub1Mean, VOM_Essential$OutSatFTFSub2Mean,
        method = "spearman", exact = FALSE) # rho = 0.24; p = .04


# transforming questionaire variables to numeric values
VOM_Essential$CoopPre_1 <- as.numeric(as.character(VOM_Essential$CoopPre_1))
VOM_Essential$CoopPre_2 <- as.numeric(as.character(VOM_Essential$CoopPre_2))
VOM_Essential$CoopPre_3 <- as.numeric(as.character(VOM_Essential$CoopPre_3))
VOM_Essential$CoopPre_4 <- as.numeric(as.character(VOM_Essential$CoopPre_4))
VOM_Essential$CoopPre_5 <- as.numeric(as.character(VOM_Essential$CoopPre_5))
VOM_Essential$CoopPre_6 <- as.numeric(as.character(VOM_Essential$CoopPre_6))
VOM_Essential$CoopPre_7 <- as.numeric(as.character(VOM_Essential$CoopPre_7))
VOM_Essential$CoopPre_8 <- as.numeric(as.character(VOM_Essential$CoopPre_8))
VOM_Essential$CoopPre_9 <- as.numeric(as.character(VOM_Essential$CoopPre_9))
VOM_Essential$CoopPre_10 <- as.numeric(as.character(VOM_Essential$CoopPre_10))

VOM_Essential$CoopCBC_1 <- as.numeric(as.character(VOM_Essential$CoopCBC_1))
VOM_Essential$CoopCBC_2 <- as.numeric(as.character(VOM_Essential$CoopCBC_2))
VOM_Essential$CoopCBC_3 <- as.numeric(as.character(VOM_Essential$CoopCBC_3))
VOM_Essential$CoopCBC_4 <- as.numeric(as.character(VOM_Essential$CoopCBC_4))
VOM_Essential$CoopCBC_5 <- as.numeric(as.character(VOM_Essential$CoopCBC_5))
```

```
VOM_Essential$CoopCBC_6 <- as.numeric(as.character(VOM_Essential$CoopCBC_6))
VOM_Essential$CoopCBC_7 <- as.numeric(as.character(VOM_Essential$CoopCBC_7))
VOM_Essential$CoopCBC_8 <- as.numeric(as.character(VOM_Essential$CoopCBC_8))
VOM_Essential$CoopCBC_9 <- as.numeric(as.character(VOM_Essential$CoopCBC_9))
VOM_Essential$CoopCBC_10 <- as.numeric(as.character(VOM_Essential$CoopCBC_10))

VOM_Essential$CoopFTF_1 <- as.numeric(as.character(VOM_Essential$CoopFTF_1))
VOM_Essential$CoopFTF_2 <- as.numeric(as.character(VOM_Essential$CoopFTF_2))
VOM_Essential$CoopFTF_3 <- as.numeric(as.character(VOM_Essential$CoopFTF_3))
VOM_Essential$CoopFTF_4 <- as.numeric(as.character(VOM_Essential$CoopFTF_4))
VOM_Essential$CoopFTF_5 <- as.numeric(as.character(VOM_Essential$CoopFTF_5))
VOM_Essential$CoopFTF_6 <- as.numeric(as.character(VOM_Essential$CoopFTF_6))
VOM_Essential$CoopFTF_7 <- as.numeric(as.character(VOM_Essential$CoopFTF_7))
VOM_Essential$CoopFTF_8 <- as.numeric(as.character(VOM_Essential$CoopFTF_8))
VOM_Essential$CoopFTF_9 <- as.numeric(as.character(VOM_Essential$CoopFTF_9))
VOM_Essential$CoopFTF_10 <- as.numeric(as.character(VOM_Essential$CoopFTF_10))

VOM_Essential$OutSatCBC_1 <- as.numeric(as.character(VOM_Essential$OutSatCBC_1))
VOM_Essential$OutSatCBC_2 <- as.numeric(as.character(VOM_Essential$OutSatCBC_2))
VOM_Essential$OutSatCBC_3 <- as.numeric(as.character(VOM_Essential$OutSatCBC_3))
VOM_Essential$OutSatCBC_4 <- as.numeric(as.character(VOM_Essential$OutSatCBC_4))
VOM_Essential$OutSatCBC_5 <- as.numeric(as.character(VOM_Essential$OutSatCBC_5))

VOM_Essential$OutSatFTF_1 <- as.numeric(as.character(VOM_Essential$OutSatFTF_1))
VOM_Essential$OutSatFTF_2 <- as.numeric(as.character(VOM_Essential$OutSatFTF_2))
```

```
VOM_Essential$OutSatFTF_3 <- as.numeric(as.character(VOM_Essential$OutSatFTF_3))

VOM_Essential$OutSatFTF_4 <- as.numeric(as.character(VOM_Essential$OutSatFTF_4))

VOM_Essential$OutSatFTF_5 <- as.numeric(as.character(VOM_Essential$OutSatFTF_5))


VOM_Essential$CoopPreMean <- as.numeric(as.character(VOM_Essential$CoopPreMean))

VOM_Essential$CoopCBCMean <-
as.numeric(as.character(VOM_Essential$CoopCBCMean))

VOM_Essential$CoopFTFMean <-
as.numeric(as.character(VOM_Essential$CoopFTFMean))

VOM_Essential$OutSatCBCMean <-
as.numeric(as.character(VOM_Essential$OutSatCBCMean))

VOM_Essential$OutSatFTFMean <-
as.numeric(as.character(VOM_Essential$OutSatFTFMean))


VOM_Essential$Age <- as.numeric(as.character(VOM_Essential$Age))


## recoding the inversed items

VOM_Essential$OutSatCBC_4_original <- recode(VOM_Essential$OutSatCBC_4_recoded,
"1=5; 2=4; 3=3; 4=2; 5=1")

VOM_Essential$OutSatCBC_4 <- recode(VOM_Essential$OutSatCBC_4_original, "1=5;
2=4; 3=3; 4=2; 5=1")

VOM_Essential$OutSatCBC_4 <- VOM_Essential$OutSatCBC_4_original


VOM_Essential$OutSatFTF_4_original <- VOM_Essential$OutSatFTF_4

VOM_Essential$OutSatFTF_4 <- recode(VOM_Essential$OutSatFTF_4_original, "1=5; 2=4;
3=3; 4=2; 5=1")
```

```
      ### demographics ###
# CoopPre
VOM_Essential %>%
  summarise(mean_total = mean(CoopPreMean),
            sd_total = sd(CoopPreMean),
            var_total = var(CoopPreMean),
            min = min(CoopPreMean),
            max = max(CoopPreMean))

VOM_Essential %>%
  summarise(mean_total = mean(CoopPreSub1Mean),
            sd_total = sd(CoopPreSub1Mean),
            var_total = var(CoopPreSub1Mean),
            min = min(CoopPreSub1Mean),
            max = max(CoopPreSub1Mean))
VOM_Essential %>%
  summarise(mean_total = mean(CoopPreSub2Mean),
            sd_total = sd(CoopPreSub2Mean),
            var_total = var(CoopPreSub2Mean),
            min = min(CoopPreSub2Mean),
            max = max(CoopPreSub2Mean))
VOM_Essential %>%
  summarise(mean_total = mean(CoopPreSub3Mean),
            sd_total = sd(CoopPreSub3Mean),
```

```
            var_total = var(CoopPreSub3Mean),
            min = min(CoopPreSub3Mean),
            max = max(CoopPreSub3Mean))

VOM_Essential %>% group_by(Condition) %>%
  summarise(mean_total = mean(CoopPreMean),
            sd_total = sd(CoopPreMean),
            var_total = var(CoopPreMean),
            min = min(CoopPreMean),
            max = max(CoopPreMean))



VOM_Essential %>% group_by(Gender) %>%
  summarise(mean_total = mean(CoopPreMean),
            sd_total = sd(CoopPreMean),
            var_total = var(CoopPreMean),
            min = min(CoopPreMean),
            max = max(CoopPreMean))

# CoopCBC
VOM_Essential %>%
  summarise(mean_total = mean(CoopCBCMean),
            sd_total = sd(CoopCBCMean),
            var_total = var(CoopCBCMean),
            min = min(CoopCBCMean),
```

```
            max = max(CoopCBCMean))
VOM_Essential %>%
  summarise(mean_total = mean(CoopCBCSub1Mean),
            sd_total = sd(CoopCBCSub1Mean),
            var_total = var(CoopCBCMean),
            min = min(CoopCBCMean),
            max = max(CoopCBCMean))
VOM_Essential %>%
  summarise(mean_total = mean(CoopCBCSub2Mean),
            sd_total = sd(CoopCBCSub2Mean),
            var_total = var(CoopCBCMean),
            min = min(CoopCBCMean),
            max = max(CoopCBCMean))
VOM_Essential %>%
  summarise(mean_total = mean(CoopCBCSub3Mean),
            sd_total = sd(CoopCBCSub3Mean),
            var_total = var(CoopCBCMean),
            min = min(CoopCBCMean),
            max = max(CoopCBCMean))

VOM_Essential %>% group_by(Condition) %>%
  summarise(mean_total = mean(CoopCBCMean),
            sd_total = sd(CoopCBCMean),
            var_total = var(CoopCBCMean),
            min = min(CoopCBCMean),
```

```
            max = max(CoopCBCMean))


# CoopFTF
VOM_Essential %>%
  summarise(mean_total = mean(CoopFTFMean),
            sd_total = sd(CoopFTFMean),
            var_total = var(CoopFTFMean),
            min = min(CoopFTFMean),
            max = max(CoopFTFMean))
VOM_Essential %>%
  summarise(mean_total = mean(CoopFTFSub1Mean),
            sd_total = sd(CoopFTFSub1Mean),
            var_total = var(CoopFTFMean),
            min = min(CoopFTFMean),
            max = max(CoopFTFMean))
VOM_Essential %>%
  summarise(mean_total = mean(CoopFTFSub2Mean),
            sd_total = sd(CoopFTFSub2Mean),
            var_total = var(CoopFTFMean),
            min = min(CoopFTFMean),
            max = max(CoopFTFMean))
VOM_Essential %>%
  summarise(mean_total = mean(CoopFTFSub3Mean),
            sd_total = sd(CoopFTFSub3Mean),
            var_total = var(CoopFTFMean),
```

```
            min = min(CoopFTFMean),
            max = max(CoopFTFMean))



VOM_Essential %>% group_by(Condition) %>%
  summarise(mean_total = mean(CoopFTFMean),
            sd_total = sd(CoopFTFMean),
            var_total = var(CoopFTFMean),
            min = min(CoopFTFMean),
            max = max(CoopFTFMean))

# OutSatCBC
VOM_Essential %>%
  summarise(mean_total = mean(OutSatCBCMean),
            sd_total = sd(OutSatCBCMean),
            var_total = var(OutSatCBCMean),
            min = min(OutSatCBCMean),
            max = max(OutSatCBCMean))
VOM_Essential %>%
  summarise(mean_total = mean(OutSatCBCSub1Mean),
            sd_total = sd(OutSatCBCSub1Mean),
            var_total = var(OutSatCBCMean),
            min = min(OutSatCBCMean),
            max = max(OutSatCBCMean))
VOM_Essential %>%
```

```
  summarise(mean_total = mean(OutSatCBCSub2Mean),
            sd_total = sd(OutSatCBCSub2Mean),
            var_total = var(OutSatCBCMean),
            min = min(OutSatCBCMean),
            max = max(OutSatCBCMean))

VOM_Essential %>% group_by(Condition) %>%
  summarise(mean_total = mean(OutSatCBCMean),
            sd_total = sd(OutSatCBCMean),
            var_total = var(OutSatCBCMean),
            min = min(OutSatCBCMean),
            max = max(OutSatCBCMean))

# OutSatFTF
VOM_Essential %>%
  summarise(mean_total = mean(OutSatFTFMean),
            sd_total = sd(OutSatFTFMean),
            var_total = var(OutSatFTFMean),
            min = min(OutSatFTFMean),
            max = max(OutSatFTFMean))
VOM_Essential %>%
  summarise(mean_total = mean(OutSatFTFSub1Mean),
            sd_total = sd(OutSatFTFSub1Mean),
            var_total = var(OutSatFTFMean),
            min = min(OutSatFTFMean),
```

```
            max = max(OutSatFTFMean))

VOM_Essential %>%
  summarise(mean_total = mean(OutSatFTFSub2Mean),
            sd_total = sd(OutSatFTFSub2Mean),
            var_total = var(OutSatFTFMean),
            min = min(OutSatFTFMean),
            max = max(OutSatFTFMean))

VOM_Essential %>% group_by(Condition) %>%
  summarise(mean_total = mean(OutSatFTFMean),
            sd_total = sd(OutSatFTFMean),
            var_total = var(OutSatFTFMean),
            min = min(OutSatFTFMean),
            max = max(OutSatFTFMean))

# Age

VOM_Essential %>%
  summarise(mean_total = mean(Age),
            sd_total = sd(Age),
            var_total = var(Age),
            min = min(Age),
            max = max(Age))

VOM_Essential %>% group_by(Condition) %>%
```

```
  summarise(mean_total = mean(Age),
            sd_total = sd(Age),
            var_total = var(Age),
            min = min(Age),
            max = max(Age))



        ### Factor Analysis ###


# Correlation Matrix for the items
corMatCoop <- rcorr(as.matrix(VOM_ItemsCoop))
corMatOutSat <- rcorr(as.matrix(VOM_ItemsOutSat))
corMatCoop
corMatOutSat


# Kaiser-Meyer-Olkin Test
VOM_ItemsCoop %>% KMO()
VOM_ItemsOutSat %>% KMO()


# Barlett's Test
VOM_ItemsCoop %>% cortest.bartlett()
VOM_ItemsOutSat %>% cortest.bartlett()


# Factor Analysis  ##additional factor until p value < 0.05
```

```
Coop_FA <- factanal(VOM_ItemsCoop, factor = 1)

Coop_FA

Coop_FA3 <- factanal(VOM_ItemsCoop, factor = 3) # p > 0.211

Coop2Var <- Coop_FA$loadings %>% rowSums

Coop2Var

OutSat_FA <- factanal(VOM_ItemsOutSat, factor = 1)

OutSat_FA

OutSat_FA2 <- factanal(VOM_ItemsOutSat, factor = 2) # p > 0.261

OutSat2Var <- OutSat_FA$loadings %>% rowSums

OutSat2Var


## creating the subscales of the questionnares

SubCoopPre1 <- VOM_ItemsCoopPre %>% select(1,3,6,7,10)

SubCoopPre2 <- VOM_ItemsCoopPre %>% select(4,9)

SubCoopPre3 <- VOM_ItemsCoopPre %>% select(2,5,8)


SubCoopCBC1 <- VOM_ItemsCoopCBC %>% select(1,3,6,7,10)

SubCoopCBC2 <- VOM_ItemsCoopCBC %>% select(4,9)

SubCoopCBC3 <- VOM_ItemsCoopCBC %>% select(2,5,8)


SubCoopFTF1 <- VOM_ItemsCoopFTF %>% select(1,3,6,7,10)

SubCoopFTF2 <- VOM_ItemsCoopFTF %>% select(4,9)

SubCoopFTF3 <- VOM_ItemsCoopFTF %>% select(2,5,8)


SubOutSatCBC1 <- VOM_ItemsOutSatCBC %>% select(2,3,5)
```

```
SubOutSatCBC2 <- VOM_ItemsOutSatCBC %>% select(1,4)

SubOutSatFTF1 <- VOM_ItemsOutSatFTF %>% select(2,3,5)
SubOutSatFTF2 <- VOM_ItemsOutSatFTF %>% select(1,4)

# eigenvalues
pca_CP <- VOM_ItemsCoop %>% cor() %>% eigen()
EV_CoopPre <- pca_CP$values

pca_CCBC <- VOM_ItemsCoopCBC %>% cor() %>% eigen()
EV_CoopCBC <- pca_CCBC$values

pca_CFTF <- VOM_ItemsCoopFTF %>% cor() %>% eigen()
EV_CoopFTF <- pca_CFTF$values

pca_OSCBC <- VOM_ItemsOutSatCBC %>% cor() %>% eigen()
EV_OSCBC <- pca_OSCBC$values

   ### Reliability Analysis ###

psych::alpha(VOM_ItemsCoop, check.keys = T) ## alpha = .87
psych::alpha(SubCoop1, check.keys = T) ## alpha = .78
psych::alpha(SubCoop2, check.keys = T) ## alpha = .63
psych::alpha(SubCoop3, check.keys = T) ## alpha = .79
```

```
psych::alpha(SubCoopCBC1, check.keys = T) ## alpha = .75

psych::alpha(SubCoopCBC2, check.keys = T) ## alpha = .71

psych::alpha(SubCoopCBC3, check.keys = T) ## alpha = .79


psych::alpha(SubCoopFTF1, check.keys = T) ## alpha = .77

psych::alpha(SubCoopFTF2, check.keys = T) ## alpha = .76

psych::alpha(SubCoopFTF3, check.keys = T) ## alpha = .8


psych::alpha(VOM_ItemsOutSat, check.keys = T) ## alpha = .71

psych::alpha(SubOutSat1, check.keys = T) ## alpha = .76

psych::alpha(SubOutSat2, check.keys = T) ## alpha = .5


psych::alpha(SubOutSatCBC1, check.keys = T) ## alpha = .76

psych::alpha(SubOutSatCBC2, check.keys = T) ## alpha = .5


psych::alpha(SubOutSatFTF1, check.keys = T) ## alpha = .78

psych::alpha(SubOutSatFTF2, check.keys = T) ## alpha = .45


    ### Hypothesis 1: neg effect of Coop on OS in CBC group ###

# check distribution of DV (OS)

hist(VOM_Essential$OutSatCBCMean)


# scatter plot of DV(OutSatCBC) & IV (Coop)

plot(OutSatCBCMean ~ CoopPreMean, data = VOM_Essential)
```

```
# regression model # H0 is rejected there is a effect; (significant) pos effect = 0.19, p = 0.0264

OutSatCBC_Coop.lm <- lm(OutSatCBCMean ~ CoopPreMean, data = VOM_Essential)

summary(OutSatCBC_Coop.lm)


OutSatSub1_CoopSub1.lm <- lm(SubOutSat1 ~ SubCoop1)


par(mfrow=c(2,2))

plot(OutSatCBC_Coop.lm)


## Subscale regression ##

H1_Coop1_OutSat1.lm <- lm(OutSatCBCSub1Mean ~ CoopPreSub1Mean, data =
VOM_Essential)

summary(H1_Coop1_OutSat1.lm) # sig eff = 0.33; p = 0.02

H1_Coop2_OutSat1.lm <- lm(OutSatCBCSub1Mean ~ CoopPreSub2Mean, data =
VOM_Essential)

summary(H1_Coop2_OutSat1.lm) #nsig eff = 0.11; p = 0.19

H1_Coop3_OutSat1.lm <- lm(OutSatCBCSub1Mean ~ CoopPreSub3Mean, data =
VOM_Essential)

summary(H1_Coop3_OutSat1.lm) #sig eff = 0.19; p = 0.03


##multiple inear regression with all subscales of cooperation orientation as predictors

H1_satisfaction_VOM.lm <- lm(OutSatCBCSub1Mean ~ CoopPreSub1Mean +
CoopPreSub2Mean + CoopPreSub3Mean, data = VOM_Essential)

summary(H1_satisfaction_VOM.lm)
```

```
H1_attitude_VOM.lm <- lm(OutSatCBCSub2Mean ~ CoopPreSub1Mean +
CoopPreSub2Mean + CoopPreSub3Mean, data = VOM_Essential)

summary(H1_attitude_VOM.lm)


#OutSatCBCSub2

H1_Coop1_OutSat2.lm <- lm(OutSatCBCSub2Mean ~ CoopPreSub1Mean, data =
VOM_Essential)

summary(H1_Coop1_OutSat2.lm) # nsig eff = -0..7; p = 0.4

H1_Coop2_OutSat2.lm <- lm(OutSatCBCSub2Mean ~ CoopPreSub2Mean, data =
VOM_Essential)

summary(H1_Coop2_OutSat2.lm) #nisg eff = 0.08; p = 0.2

H1_Coop3_OutSat2.lm <- lm(OutSatCBCSub2Mean ~ CoopPreSub3Mean, data =
VOM_Essential)

summary(H1_Coop3_OutSat2.lm) #nsig eff = 0.03; p = 0.67


## spearman correlation Subscale ###

#OutSatSub1

cor.test(VOM_Essential$CoopPreSub1Mean, VOM_Essential$OutSatCBCSub1Mean,
method = "spearman", exact = FALSE) # rho = .27; p = 0.01 X

cor.test(VOM_Essential$CoopPreSub2Mean, VOM_Essential$OutSatCBCSub1Mean,
method = "spearman", exact = FALSE) # rho = .12; p = 0.3

cor.test(VOM_Essential$CoopPreSub3Mean, VOM_Essential$OutSatCBCSub1Mean,
method = "spearman", exact = FALSE) # rho = .18; p = 0.1


#OutSatSub2

cor.test(VOM_Essential$CoopPreSub1Mean, VOM_Essential$OutSatCBCSub2Mean,
method = "spearman", exact = FALSE) # rho = -.05; p = 0.65
```

```
cor.test(VOM_Essential$CoopPreSub2Mean, VOM_Essential$OutSatCBCSub2Mean, method = "spearman", exact = FALSE) # rho = .14; p = 0.2

cor.test(VOM_Essential$CoopPreSub3Mean, VOM_Essential$OutSatCBCSub2Mean, method = "spearman", exact = FALSE) # rho = .04; p = 0.7



# pearson correlation

# HA: correlation value is below 0 #rejected p = 0.98 cor = 0.25

cor.test(VOM_Essential$CoopPreMean, VOM_Essential$OutSatCBCMean, alternative = "less")

# HA: correlation value is not 0 # true p = 0.026 cor = 0.25

cor.test(VOM_Essential$CoopPreMean, VOM_Essential$OutSatCBCMean)

# Ha: correlation value is above 0 # true p = 0.013 cor 0.25

cor.test(VOM_Essential$CoopPreMean, VOM_Essential$OutSatCBCMean, alternative = "greater")


#Spearman correlation

# HA: correlation value is not 0 # rejected p = 0.1053 rho = 0.18

cor.test(VOM_Essential$CoopPreMean, VOM_Essential$OutSatCBCMean, method = "spearman", exact = FALSE)

# HA: correlation value is below 0 #rejected p = 0.95 rho = 0.188

cor.test(VOM_Essential$CoopPreMean, VOM_Essential$OutSatCBCMean, method = "spearman", exact = FALSE, alternative = "less")

# Ha: correlation value is above 0 # rejected p = 0.053 rho = 1.88

cor.test(VOM_Essential$CoopPreMean, VOM_Essential$OutSatCBCMean, method = "spearman", exact = FALSE, alternative = "greater")
```

```
#visualization


H1.graph <- ggplot(VOM_Essential, aes(x = CoopPreMean, y = OutSatCBCMean)) +

  geom_point()

H1.graph <- H1.graph + geom_smooth(method = "lm", col = "black")

H1.graph + theme_bw() + labs(title = "Outcome Satisfaction as a function of Cooperation in CBC VOM", x = "Cooperation (0 to 5)", y = "Outcome Satisfaction (0 to 5)")

H1.graph


  ### Hypothesis 2: pos effect of Coop on OS in FTF group ###

# check distribution of DV (OS)

hist(VOM_Essential$OutSatFTFMean)


# scatter plot of DV(OutSatCBC) & IV (Coop)

plot(OutSatFTFMean ~ CoopPreMean, data = VOM_Essential)


# regression model # H0 not rejected effect is not greater than 0; (not significant) neg effect = -0.02, p = 0.8

OutSatFTF_Coop.lm <- lm(OutSatFTFMean ~ CoopPreMean, data = VOM_Essential)

summary(OutSatFTF_Coop.lm)


par(mfrow=c(2,2))

plot(OutSatFTF_Coop.lm)


#multiple linear regression wth all 3 subscales of coop as redictors for FTF OS
```

```
H2_satisfaction_VOM.lm <- lm(OutSatFTFSub1Mean ~ CoopPreSub1Mean +
CoopPreSub2Mean + CoopPreSub3Mean, data = VOM_Essential)

summary(H2_satisfaction_VOM.lm)


H2_attitude_VOM.lm <- lm(OutSatFTFSub2Mean ~ CoopPreSub1Mean +
CoopPreSub2Mean + CoopPreSub3Mean, data = VOM_Essential)

summary(H2_attitude_VOM.lm)


## Subscale regression ##

#OutSatCBCSub1

H2_Coop1_OutSat1.lm <- lm(OutSatFTFSub1Mean ~ CoopPreSub1Mean, data =
VOM_Essential)

summary(H2_Coop1_OutSat1.lm) # nsig eff = 0.12; p = 0.32

H2_Coop2_OutSat1.lm <- lm(OutSatFTFSub1Mean ~ CoopPreSub2Mean, data =
VOM_Essential)

summary(H2_Coop2_OutSat1.lm) #nsig eff = 0.03; p = 0.73

H2_Coop3_OutSat1.lm <- lm(OutSatFTFSub1Mean ~ CoopPreSub3Mean, data =
VOM_Essential)

summary(H2_Coop3_OutSat1.lm) #nsig eff = 0.02; p = 0.78


#OutSatCBCSub2

H2_Coop1_OutSat2.lm <- lm(OutSatFTFSub2Mean ~ CoopPreSub1Mean, data =
VOM_Essential)

summary(H1_Coop1_OutSat2.lm) # nsig eff = -0.07; p = 0.4

H2_Coop2_OutSat2.lm <- lm(OutSatFTFSub2Mean ~ CoopPreSub2Mean, data =
VOM_Essential)

summary(H1_Coop2_OutSat2.lm) #nisg eff = 0.08; p = 0.2
```

```
H2_Coop3_OutSat2.lm <- lm(OutSatFTFSub2Mean ~ CoopPreSub3Mean, data = VOM_Essential)

summary(H1_Coop3_OutSat2.lm) #nsig eff = 0.03; p = 0.67


## spearman correlation Subscale ###

#OutSatSub1

cor.test(VOM_Essential$CoopPreSub1Mean, VOM_Essential$OutSatFTFSub1Mean, method = "spearman", exact = FALSE) # rho = .13; p = 0.26

cor.test(VOM_Essential$CoopPreSub2Mean, VOM_Essential$OutSatFTFSub1Mean, method = "spearman", exact = FALSE) # rho = .03; p = 0.97

cor.test(VOM_Essential$CoopPreSub3Mean, VOM_Essential$OutSatFTFSub1Mean, method = "spearman", exact = FALSE) # rho = .01; p = 0.91


#OutSatSub2

cor.test(VOM_Essential$CoopPreSub1Mean, VOM_Essential$OutSatFTFSub2Mean, method = "spearman", exact = FALSE) # rho = -.19; p = 0.1

cor.test(VOM_Essential$CoopPreSub2Mean, VOM_Essential$OutSatFTFSub2Mean, method = "spearman", exact = FALSE) # rho = -.06; p = 0.58

cor.test(VOM_Essential$CoopPreSub3Mean, VOM_Essential$OutSatFTFSub2Mean, method = "spearman", exact = FALSE) # rho = -.2; p = 0.07


# pearson correlation

# HA: correlation value is below 0 #rejected p = 0.40 cor = -0.03

cor.test(VOM_Essential$CoopPreMean, VOM_Essential$OutSatFTFMean, alternative = "less")

# HA: correlation value is not 0 # rejected p = 0.80 cor = -0.03
```

```
cor.test(VOM_Essential$CoopPreMean, VOM_Essential$OutSatFTFMean)

# Ha: correlation value is above 0 # rejected p = 0.59 cor = -0.03

cor.test(VOM_Essential$CoopPreMean, VOM_Essential$OutSatFTFMean, alternative =
"greater")


#Spearman correlation

# HA: correlation value is not 0 # rejected p = 0.84 rho = -0.02

cor.test(VOM_Essential$CoopPreMean, VOM_Essential$OutSatFTFMean, method =
"spearman", exact = FALSE)

# HA: correlation value is below 0 #rejected p = 0.42 rho = -0.02

cor.test(VOM_Essential$CoopPreMean, VOM_Essential$OutSatFTFMean, method =
"spearman", exact = FALSE, alternative = "less")

# Ha: correlation value is above 0 # rejected p = 0.57 rho = -0.02

cor.test(VOM_Essential$CoopPreMean, VOM_Essential$OutSatFTFMean, method =
"spearman", exact = FALSE, alternative = "greater")



#visualization


H2.graph <- ggplot(VOM_Essential, aes(x = CoopPreMean, y = OutSatFTFMean)) +

  geom_point()

H2.graph <- H2.graph + geom_smooth(method = "lm", col = "black")

H2.graph + theme_bw() + labs(title = "Outcome Satisfaction as a function of Cooperation in
FTF VOM", x = "Cooperation (0 to 5)", y = "Outcome Satisfaction (0 to 5)")

H2.graph
```

H3 FTF increases coop H0: difference in mean between pre and post measurement = 0

Boxplot

H3.Box <- boxplot(VOM_Essential$CoopPreMean, VOM_Essential$CoopFTFMean)

H3.Box + theme_bw() + labs(title = "Boxplot of pre and post FTF measurement of Cooperation", x = "1: Premeasure; 2: FTF", y = "Cooperation (0 to 5)")

H3.Box

Scatterplot

plot(VOM_Essential$CoopPreMean, VOM_Essential$CoopFTFMean)

abline(a = 0, b = 1)

paired t test // t = -5.1639, p = >0.5, mean of diff = -0.37 // HO that no difference in means is rejected; HA: FTF has pos effect on coop is rejected bc of neg effect

t.test(VOM_Essential$CoopPreMean, VOM_Essential$CoopFTFMean, mu = 0, paired = TRUE, conf.level = 0.95)

// which order is the right one?

t.test(VOM_Essential$CoopFTFMean, VOM_Essential$CoopPreMean, mu = 0, paired = TRUE, conf.level = 0.95)

Subscale t.tets

Coop pre - Coop FTF

t.test(VOM_Essential$CoopPreSub1Mean, VOM_Essential$CoopFTFSub1Mean, mu = 0, paired = TRUE, alternative = "less", conf.level = 0.95) # p > 0.05, t = -4.37, diff of mean = -0.34

t.test(VOM_Essential$CoopPreSub2Mean, VOM_Essential$CoopFTFSub2Mean, mu = 0, paired = TRUE, conf.level = 0.95) # p > 0.05, t = -4.79, diff of mean = -0.55

t.test(VOM_Essential$CoopPreSub3Mean, VOM_Essential$CoopFTFSub3Mean, mu = 0, paired = TRUE, conf.level = 0.95) # p > 0.05, t = -3.35, diff of mean = -0.29

-2.60

t.test(VOM_Essential$CoopCBCSub1Mean, VOM_Essential$CoopFTFSub1Mean, mu = 0, paired = TRUE, alternative = "less", conf.level = 0.95) # p = 0.003, t = -2.78, diff of mean = -0.22

t.test(VOM_Essential$CoopCBCSub1Mean, VOM_Essential$CoopFTFSub1Mean, mu = 0, paired = TRUE, conf.level = 0.95) # p = 0.006, t = -2.78, diff of mean = -0.12

t.test(VOM_Essential$CoopCBCSub2Mean, VOM_Essential$CoopFTFSub2Mean, mu = 0, paired = TRUE, conf.level = 0.95) # p = 0.06, t = -1.85, diff of mean = -0.14

t.test(VOM_Essential$CoopCBCSub3Mean, VOM_Essential$CoopFTFSub3Mean, mu = 0, paired = TRUE, conf.level = 0.95) # p = 0.18, t = -1.3, diff of mean = -0.07