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The influence of health workers' motivation and work environment on attitudes towards adolescent girls seeking sexual and reproductive health services in the Democratic Republic of Congo

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Public Health Science

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Abstract

Adolescent girls are vulnerable to sexual and reproductive health challenges, particularly in low- and middle-income countries. Two decades of increased investment and attention to adolescent girls' health and development had not improved adolescent health to the extent needed considering the fast-growing youth population in countries like the DRC.

To address the shortfall, the role of competent empathic health workers free of judgemental attitudes are considered important in improving health systems and achieving improved sexual- and reproductive health outcomes for adolescents (Bastien et al., 2022, Jaskiewicz and Tulenko, 2012; Kok et al., 2015; Intrahealth, 2016; Scott et al., 2018). In this thesis, the relationship between the work environment, motivation, and attitudes of health workers will be analysed by use of data from a health workers survey in the Democratic Republic of Congo (DRC). Two forms of attitudes will be analysed, health workers attitudes towards adolescent girls seeking sexual and reproductive health services, and attitudes of health workers towards sexual- and intimate-partner violence. The hypothesis is that factors in the work environment such as supportive supervision and clarity of goal and purpose at the health clinics, can have an impact on motivation and on attitudes.

Sammendrag

Unge jenter i alderen 10-19 år er sårbare for seksuelle og reproduktive helseutfordringer, spesielt i lav- og mellominntektsland. To tiår med økte investeringer og oppmerksomhet til unge jenters helse og utvikling har ikke forbedret ungdomshelsen i den grad det er nødvendig med tanke på den raskt voksende ungdomsbefolkningen i land som DRC.

For å møte mangelen, anses rollen til kompetente empatiske helsearbeidere fri for dømmende holdninger som viktig for å forbedre helsesystemer og oppnå forbedret seksuell- og reproduktive helse for ungdom (Bastien et al., 2022, Jaskiewicz og Tulenko, 2012; Kok et al. al., 2015; Intrahealth, 2016; Scott et al., 2018). I denne oppgaven vil forholdet mellom arbeidsmiljø, motivasjon og holdninger til helsearbeidere bli analysert ved bruk av data fra en helsearbeiderundersøkelse i Den demokratiske republikken Kongo (DRC). To former for holdninger vil bli analysert, helsepersonells holdninger til unge jenter som søker seksuelle- og reproduktive helsetjenester, og helsepersonells holdninger til seksuell vold og partnervold. Hypotesen er at faktorer i arbeidsmiljøet som støttende veiledning og klarhet i mål og formål ved helsestasjonene, kan ha innvirkning på motivasjon og på holdninger.

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Abbreviations

CA	Cronbach's Alpha
ASRH	Adolescent Sexual and Reproductive Health
Cordaid	Catholic organisation for relief and development aid
CHW	Community Health Workers
DHS	Demographic Health Survey
DRC	Democratic Republic of Congo
EFA	Explorative Factor Analysis
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
IASC	Inter-Agency Standing Committee
PrEP	Pre-Exposure prophylaxis
RENADEF	Reseau National des ONG pour le Development
SDG	Sustainable Development Goals
SRH	Sexual and Reproductive Health
SRHR	Sexual and Reproductive Health Rights
WHO	World Health Organisation
WHO-ERC	WHO Ethics Review Committee

1. Introduction

Adolescent girls are vulnerable to sexual and reproductive health challenges, particularly in low- and middle-income countries (Santhya and Jejeebhoy, 2015; Grose et al., 2020). Despite efforts over the last 20 years to increase investment and attention to adolescent girls' health and development, implementation fall short (Santhya and Jejeebhoy, 2015; Casey et al., 2020). Adolescent health remains a global health problem.

To address the shortfall, the role of competent empathic health workers free of judgemental attitudes is considered key to improving health systems and achieving improved sexual- and reproductive health outcomes for adolescents (Bastien et al., 2022, Jaskiewicz and Tulenko, 2012; Kok et al., 2015; Intrahealth, 2016; Scott et al., 2018). The health workforce is a priority in the Sustainable Development Goal 3, *Health and wellbeing for all at all ages*, where one of its targets calls for “substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries” (WHO, 2016).

In this thesis, the relationship between the work environment, motivation, and attitudes of health workers will be analysed by use of data from a health workers survey in the Democratic Republic of Congo (DRC). Two forms of attitudes will be analysed, health workers attitudes towards adolescent girls seeking sexual and reproductive health services, and attitudes of health workers towards sexual- and intimate-partner violence. The hypothesis is that factors in the work environment such as supportive supervision and clarity of goal and purpose at the health clinics, can have an impact on motivation and on attitudes.

In this thesis there will first be a description of the health challenge of adolescent girls and a review of literature on the issue of improving health workers' performance in low-income countries. Key concepts will be defined by use of literature, and a conceptual framework adapted from the work of Franco, Bennet and Kanfer (2002) will be developed and applied. In the conceptual framework, motivation is illustrated as a transactional process between the individual and the work environment (Franco et al. 2004). The methodology for the analysis will be described in the third chapter, including description of study design, the sample, the survey design, the data collection and preparation, the use of statistical tools such as Cronbach's Alpha for identifying the internal consistency between items, and Explorative Factor Analysis (FA) for exploring items underlying clusters of items in a section. Also in the methodology chapter, there is a justification of choosing to carry out a mediation analysis of our variables, and the relevance of parallel mediation analysis. The hypothesis of the parallel

mediation of the variables in this thesis will be defines. The methodology chapter will finally include ethical considerations. In the fourth chapter, the results of the internal consistency analysis will be presented before the finding from the general information will be briefly describes to understand more who the respondents were. The results of the parallel mediation analysis will be presented. In the discussion, the findings of the parallel mediation analysis will be discussed considering the conceptual model presented in the first background chapter.

The discussion will analyse how the results can help us understand the complex relationship between work environment, motivation, attitudes, and access to quality health services and improved health outcomes for adolescent girls.

Data for this analysis is provided from a health worker survey conducted in 30 health clinics in the DRC in 2021. The health survey is one component in a wider implementation research initiative led by the WHO in collaboration with the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), School of Public Health at University of Kinshasa, WHO's own research department as well as researchers from Norwegian University of Life Sciences.

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2. Background

The health system in DRC is among the weakest in the world after decades of unrest and lack of investment (Tran, et al., 2021). World Health Organisation (WHO) estimates that the DRC has only six qualified health workers per 10,000 population, as compared to the recommended minimum of 23 per 10,000 population (Intrahealth, 2016). The population in DRC is young. The median age is 18,8 years old and almost 50 per cent of the population is under 15 years old¹. The adolescent age group is therefore a large proportion of the population and ensuring they have equitable access to health services is therefore critical to improving health and well-being of the population.

2.1 Adolescent girls and sexual and reproductive health

Adolescent girls are vulnerable to several sexual and reproductive health risks. These include sexually transmitted infections, unsafe abortions, unintended childbearing, lack of health awareness, sexual education and access to sexual and reproductive health services (Bearinger, Sieving, Ferguson, & Sharma, 2007; Muanda, 2018). The fertility rate in DRC is the third highest in the world, and DRC is rated among the 10 countries with the highest average birth rate in the world for adolescent girls (World Bank data, 2019). The high fertility rate leads to negative health outcomes that follow from unwanted pregnancies, unsafe abortions, and risk of sexually transmitted diseases (Bearinger et al., 2007, in Grose et al., 2021).

Twenty-seven per cent of adolescent girls between 15-19 years old have given birth or is pregnant. In the Demographic and Health Survey (DHS), women report that 24 per cent had sexual relations before the age of 15, and 65 per cent before the age of 18 (DHS, 2013-2014). Only 15,5 per cent of girls 15-24 years old use modern contraception and adolescent girls experience greater unmet need for contraception than adolescent boys (Muanda et al., 2018). HIV prevalence among the adult population age 15-49 is estimated at 1.2%. Prevalence is higher among women (1.6%) than among men (0.6%) (DHS, 2013-2014). These data from the national survey confirm the vulnerability of adolescent girls and need to access quality SRH care.

¹ World Population Review available online: <https://worldpopulationreview.com/countries/dr-congo-population>

Delaying childbearing and marriage, and reducing unintended pregnancies are factors that can improve adolescent girls' health and well-being. This can be achieved through expanding health awareness and enabling access to sexual and reproductive services (Santhya and Jejeebhoy, 2014).

Another threat to the sexual and reproductive health of adolescent girls is the high risk of sexual and inter-partner violence. In humanitarian and conflict settings, there are few studies that focus specifically on adolescent girls and rates of violence against them, while more is written on rates of violence against women and against children (Stark et al., 2020). Violence is linked to pre-existing gender inequality and social structures. Studies from conflict areas suggest that conflict-related sexual violence is being normalized in communities where fighting has ceased (Friedman, 2011; Alexandre and Muntondo, 2022).

Survivors of sexual- and inter-partner violence face bias and prejudice from societal norms blaming the survivor. These norms are being reproduced in society and findings indicated that the younger generations, both women and men, accept intimate partner violence in some situations (Tlapek, 2015). Health workers are influenced by harmful social values and norms, and addressing these attitudes among health workers is therefore an important strategy to improve the health of girls and young women.

2.2 Health workers' bias against adolescent girls.

Health workers' performance includes the availability of health care personnel, their clinical competence, their ability to provide patient-centred care, and their efficiency (Rowe et al., 2018:1164). In the UN Global Strategy for Women's, Children's, and Adolescents Health (2016-2030) the action point on health system resilience is concerned with patient-centered care and that it includes provision of non-discriminatory care for adolescents (WHO, 2016). In low-income countries, a third of people report negative experiences when approaching the health system such as lack of attention, respect, and communication, as well as disrespectful treatment and abuse (Kruk et al., 2018). Vulnerable groups such as adolescent girls are affected the most by such negative attitudes (Kruk, et al., 2018; Sieverding, et al., 2018). Studies have found that health workers' negative attitudes towards premarital sex affected access to contraception and family planning advice. A study from Ethiopia found that 46,5 per cent of the health care workers had negative attitudes towards providing reproductive health services to unmarried adolescent girls, and around a third of the health workers were either negative or

neutral towards providing health awareness and sexual health education (Tilahun et al., 2012). Adolescent girls in DRC report that they experienced shame and embarrassment when they bought contraceptives from health centres or pharmacies and that this is because of community disapproval (Muanda et al., 2018). In the same study, respondents reported judgemental attitudes as a barrier to accessing contraception (Muanda et al., 2018). Bias against adolescent girls can affect access to oral pre-exposure prophylaxis (PrEP), which has the potential to reduce HIV acquisition among adolescent girls in sub-Saharan Africa (Pilgrim, et al. 2018). Health workers' attitudes are influenced by social norms, and a study from DRC concludes that there is a need to address social norms to reduce stigma and to meet the need for reproductive health services among adolescent girls (Casey et al., 2020).

Santhya and Jeebhoy (2015) argue that health professionals, health systems, and its associations, need to find ways to learn from adolescents about what adolescents perceive as necessary to make health services adolescent-friendly. The researchers argue that training curricula need to be revised. In addition, there needs to be more support to health care professionals on 'how' to deliver services with respect to the right of adolescent youth and delivery of services without judgement (Santhya and Jeebhoy, 2015).

These studies show that bias or negative attitudes of health workers towards adolescent girls and their right to sexual and reproductive health services may be a considerable barrier to improved health services for this group. The challenges are reported in multiple countries, making adolescent sexual- and reproductive health a global health problem (Muanda et al., 2018; Santya and Jeebhoy, 2015; Onukwagha et al., 2019; Ahanonu, 2014; Nalwadda, 2011; Thongmixay et al., 2019).

The challenge of judgemental attitudes towards adolescents is exacerbated by judgemental attitudes with regards to sexual- and inter-partner violence. These judgemental attitudes reflect the wider societal norms that blame victims and excuse offenders of violence. Prior studies have documented victim-blaming as a product of social norms that perceive certain forms of gender-based violence as justifiable, particularly when the victim violated traditional gender roles (Chapleau et al., 2008; Flood & Pease, 2009; Grubb & Turner, 2012; Klein, 2004). Social norms can protect perpetrators from legal jurisdiction and survivors of violence can come to believe that she is herself to blame for the violence against her (Sommer, 2019).

These attitudes are barriers to building adolescent-friendly health services that can provide quality care and advice to adolescent girls according to their needs and own preference.

Meeting a health care worker that is non-judgemental can be key to adequate clinical care, to heal and recover from sexual abuse and violence, and to empower adolescents for making their own informed choices that can impact positively their health and well-being.

2.3 Health worker's motivation

The ability of health workers to deliver effective services is dependent on multiple factors such context in which they work and the health system they work within, as well as their motivation to provide the health service (Ormel et al., 2019). Health workers' motivation is defined as an "individual's degree of willingness to exert and maintain an effort towards organisational goals" (Franco, Bennett and Kanfer, 2002, in Ormel et al., 2019:2). While much of this literature on health workers' motivation is from middle- or high-resource settings, less research is done in low-resource settings such as in low-income countries in the south with weak state structures (Franco et al., 2002; Willis-Shattuck et al., 2008; Kok et al., 2015; Kyamusugulwa, preliminary; Tynan et al., 2013).

Franco, Bennett and Kanfer (2004) argue that lack of motivation will manifest itself in "lack of courtesy to patients, tardiness and absenteeism, poor process quality such as failure to conduct proper patient examination and failure to treat patients in a timely manner" (Franco, Bennett and Kanfer, 2004:343). Motivation therefore manifests itself in workers' attitudes towards work responsibilities and the ways in which they carry out their tasks.

To achieve improved health outcomes for adolescent girls, a strategy is therefore to influence the motivation of health workers, that is health workers' willingness to provide improved services, put new guidelines and policies into practice, and meet adolescents without judgement but with responsiveness to their preferences. The determinants of motivation are many, and motivation is shaped as a transaction between the health worker, the context, and the work environment. A different form of motivation needs to be conceptualised in order to understand the complex relationship between the work environment, motivation, and attitudes of health workers.

2.3.1 Altruistic motivation

It can be argued that altruism is the greatest determinant of motivation for health workers as the form of motivation is driven by the personal desire to help, to save life, and to serve the

community (Muthuri et al., 2020). It is a form of intrinsic motivation i.e. motivation driven factors such as witnessing positive change, personal growth (Ormel et al., 2019:12). The person's own values and commitment to work and deliver on the task assigned, is one of the main drivers behind the health workers' motivation, and not primary external factors such as monetary incentives or community respect. To influence determinants of altruistic motivation is therefore important as health workers will not only need to be self-driven in coming to work on time, staying the hours necessary to complete the task even if exceeding work hours, and show empathy for adolescents' health needs, but also be open to challenging own personal belief (Jonas et al., 2018). Altruistic motivation will manifest itself in willingness to implement knowledge from training even if not being paid more, and to work towards set goals and complying with instructions.

Self-driven health workers might risk burn-out from work overload and stress if not being provided with support (Jaskiewicz and Tulenco, 2012). Lack of supervision was also found as a demotivator in a systematic review of intervention design factors that can improve performance of community health workers in low- and middle-income countries (Kok et al., 2014). The work environment might therefore be important for altruistic motivation. Understanding 'what' can be done to make altruism grow in the workplace is therefore considered important for improving the quality of health services.

2.3.2 Societal motivation

Societal motivation is a form of extrinsic motivation that is driven by respect, recognition, and support from the community (Kok et al., 2014:1219). Societal motivation is a form of extrinsic motivation, but unlike financial rewards and benefit, it is non-material, determined by community links, influence and support. Community support and expectations reflect social values, norms, and beliefs prevalent in the community (Tynan et al., 2013; Franco et al., 2002). In meeting community expectations, the health worker gain respect and recognition for the work and services building "trust, recognition and appreciation from the community" (Tynan, 2013:11).

Health workers are working in the interface between the health sector and communities, not only the organizational commitment but also the commitment towards the community should be looked at when assessing motivation as a determinant of performance (Kok et al., 2014)+ from the contact with patients, their families, and the extended community, the health workers

experience appreciation, encouragement, support, recognition, respect, admiration, sense of status (Kok et al., 2014). Youth being a large part of the community in many low-income countries, such as the DRC, might also be a community factor, and receiving appreciation from the youth in the community may therefore also strengthen this form of motivation.

2.3.1 Financial motivation

Extrinsic motivation from salaries and benefits are monetary in character and these might include salary, payment for overtime, health insurance, pension benefits, transport allowance, and timely and predictable payments ensuring job-safety (Sato et al., 2017). Health workers in low-income countries are often poorly paid, many might be working as volunteers with only minor material incentives given (Ormel et al., 2019). Performance-based financing is introduced in many contexts as a finance model for health systems that is vulnerable to price fluctuations and patients' ability to pay (Bhatnagar and George, 2016; Fox et al., 2014, Bertone et al., 2016).

It is supported by research that salaries, benefits, and other monetary and material incentives are not alone enough to increase motivation of health workers and improve performance, since other factors such as overtime, high load of patients and poor management are demotivators that simultaneously play out negatively on health workers motivation (Salto, 2017). A focus on financial incentives alone is neglecting less tangible incentives such as “work itself, achievement and recognition” (Franco, Bennet and Kanfer, 2002:1264).

A study from DRC confirms the argument that material monetary incentives alone do not improve motivation and quality of services. In a study from Katanga province in DRC, the finding was that despite adding considerable resources to the health facility resources, the positive effect on health worker motivation cannot be taken for granted. The study showed that there were no effects on the service provision, perceived quality of care, or satisfaction rates, compared to other non-supported health facilities (Fox et al., 2013:104).

Financial motivation by means of salaries, benefits and other forms of material support should therefore be studied with also other forms of motivation included. Different human resource management interventions may influence motivation such as the combination of seeing visible improvements in the quality of the health services provided together with increased salary (Dieleman et al., 2009).

2.4 The importance of the work environment for motivation

Health workers provide services in low-income settings where they are expected to provide quality health services with limited resources and support. It is widespread that the work environment is demanding. Work overload and little organizational support negatively affect the productivity of the health workers and the quality of health services provided (Jaskiewicz and Tulenko, 2012). Jaskiewicz and Tulenko (2012) argue that there are four essential elements necessary to provide an enabling work environment for health workers. These are a manageable workload, equipment and supplies at the health facility, but also respect and recognition from the community and the health system, and supportive supervision at work. Other research also found that human resource management interventions can contribute positively to health workers' performance such as participatory and interactive training, work tools, and organisational change (Dielman et al., 2008:7). Supportive supervision can be understood as "on-site supervision or mentorship usually provided by health authorities under a supportive or facilitated model, with immediate feedback to health care provider to assist in improving performance" (Renggli et al., 2018).

In a study from Papua New Guinea, researchers also found that inter-personal factors, work climate, and supportive supervision were important for the job satisfaction and motivation of rural nurses (Jayasuryia et al., 2012). In a study from Tanzania, research revealed that lack of supportive supervision had a negative effect on health workers and decreased their motivation and attitude towards clients (Manongi et al., 2006).

Organisational factors such as health staff understanding well the goal and purpose of the clinic is also a determinant of motivation. A work environment where clinic management clearly communicates the goals and purpose to staff and to the community is considered a motivating factor (Franco et al., 2002: 1259, Kok et al., 2014:1222). A systematic review of interventions that influence health workers' performance found that lack of clarity of tasks and roles can lower motivation as well as impact relations to the community (Kok et al., 2015).

2.5 The conceptual framework of determinants and consequences of health workers' motivation

The conceptual framework of Franco, Bennet and Kanfer (2002) will be applied to understand the relationship between the intervention, work environment, motivation, and attitudes in this study. They developed the framework to help describe and understand "the complex transaction

between individuals and their work environment and the impact it has on motivation” (Franco, Bennet and Kanfer, 2002, in Tynan, 2013:3). In this model, work motivation is not an attribute of the individual or the organisation but motivation results from transactions between the individual and their work environment. Social factors and? organisational factors impact the individual motivational process. Individual level determinants such as age, education, and level of training impact the motivational process together with organisational and social factors, and what health workers’ think, feel, and do at work with their patients.

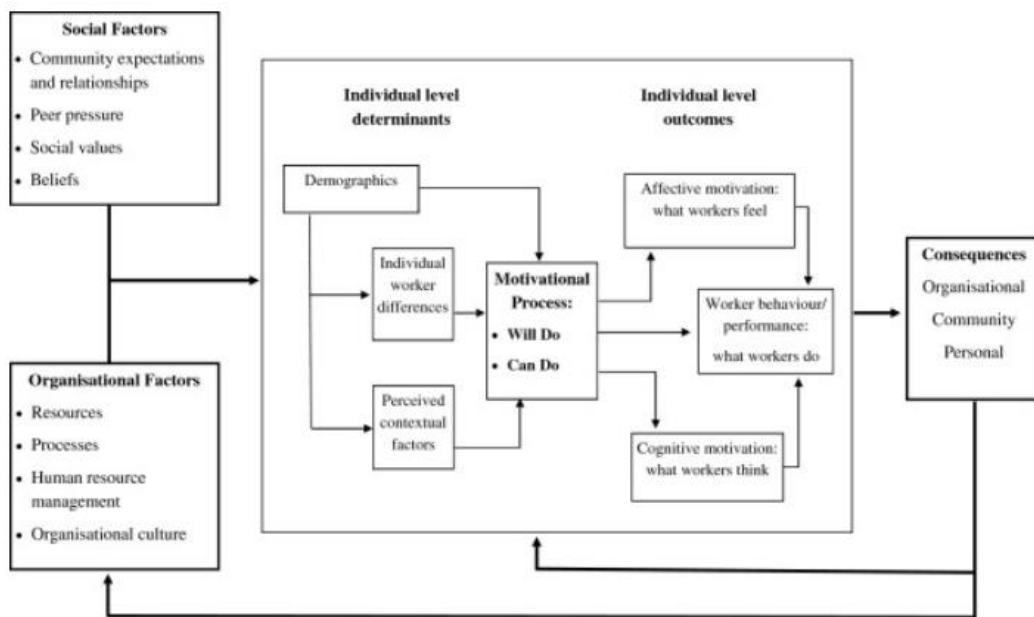


Figure 1: Conceptual framework of the determinants and consequences of health worker motivation (Franco, Bennet and Kanfer, 2002, in Tynan 2013)

This conceptual framework can support the analysis of the effect of an intervention on the work environment for health worker, on their motivation, and on attitudes. It includes work environmental factors in its model such as “organizational and cultural values that might facilitate or impede” implementation of initiative to improve quality of interventions (Franco, Bennett and Kanfer, 2002:1255). The model includes also contextual factors such as the specific social, cultural context as well as individual demographic factors.

The framework seeks to unpack the many ways workers’ motivation can be affected, and stress that it is important to identify multiple channels influencing motivation. In their conceptual framework they separate determinants of motivation into individual level determinants,

determinants that operate at organizational level, and “determinants stemming from the interaction with the broader societal culture” (Franco, Bennet and Kanfer, 2002:1264).

Motivation is in the framework also influenced by organizational determinant and what constitutes an enabling work environment. This might be good leadership, access to supervision, and access to resources to carry out the work tasks (Tynan et al., 2013). Factors in the work environment are therefore part of the determinants of motivation, and in the model, improved motivation is a determinant of improved attitudes and impact performance at work with improved services free of bias and judgement.

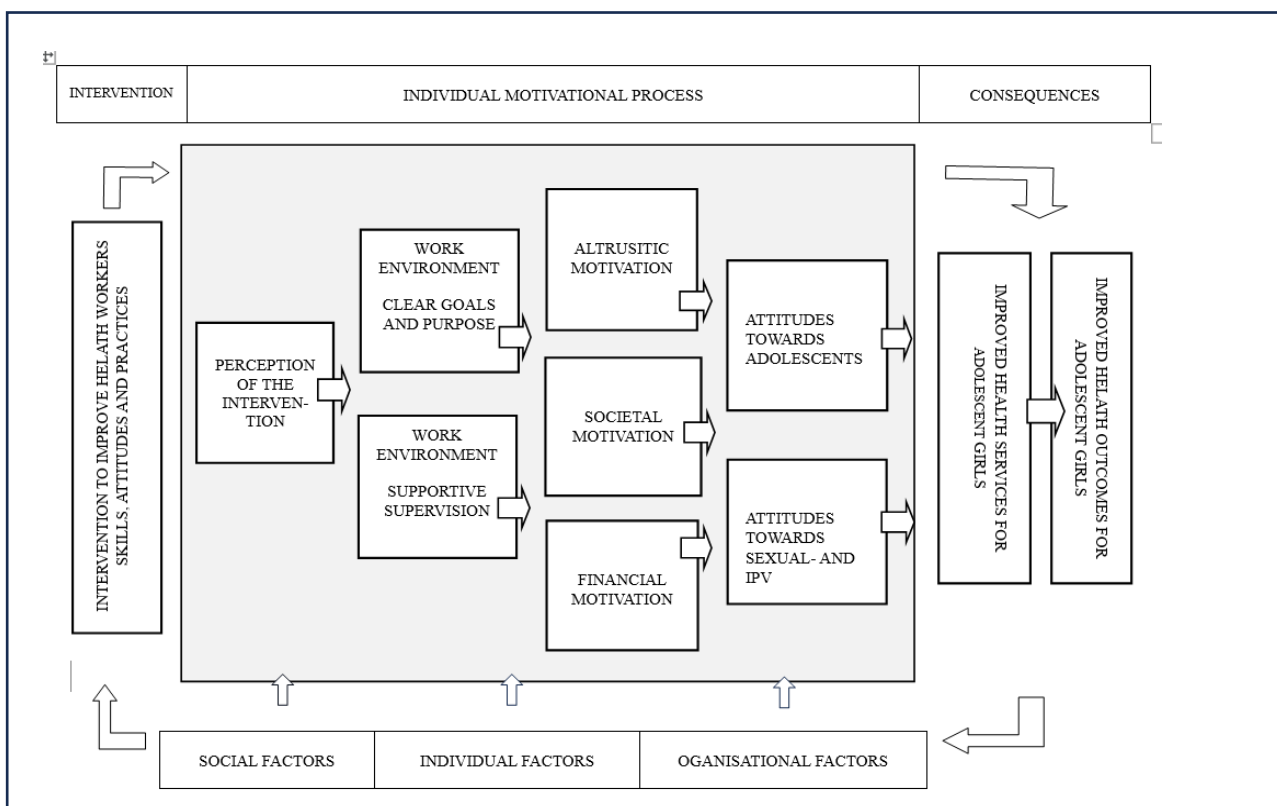


Figure 2: Conceptual framework for analysis of intervention design, perception of intervention, work environment and health workers motivation and attitudes (adapted from Franco et al., 2004:345)

In our analysis of the motivation of health workers in DRC, and the ways in which the intervention to improve the work environment can impact motivation and attitudes, the conceptual framework from Franco, Bennet and Kanfer (2002) can be adapted and applied. In Figure 1, the main concepts discussed and defined so far are placed in relation to each other and within the wider context of factors such as the intervention, individual, social and

organizational factors that are influencing motivation, attitudes, performance, and health outcomes.

2.6 Public health relevance

While there is progress globally in health indicators of adolescence over the last 25 years with regards to access to contraception, later marriage, delay in first sexual experience and delay in first childbirth, there is unequal progress both within and between countries (Liang et al., 2019). There are 1,263 billion adolescents (2019 numbers), and an increasing number of the adolescent population in the world are living in countries with multiple health burdens (Liang et al., 2019:54). In these countries, adolescent girls are vulnerable as a population group due to intersecting vulnerabilities such as poverty, lack of access to education, social and gender discrimination, that restricts their choice and agency (Lian et al. 2019). Maternal mortality and mental health conditions are leading causes of death and illness for girls 15-19 years old in low-income countries (Liang et al., 2019). Improved health promotion and access to clinical care by health workers present in adolescents' communities can help empower adolescents to make informed choices about their behaviour and know where to seek help when in need for care.

Much research has been conducted with a focus on adolescents and risk-behaviour and less on other public health factors (Liang et al., 2019:514). This thesis contributes to turning the attention towards the health system, the supervision of health workers and improved management of health clinics as a possible way forward to change discriminatory attitudes among the health workers.

The role of a supportive and adolescent-friendly health care worker, free of judgemental attitudes, is an important pillar in the health systems' capacity to deliver health outcomes for adolescent girls in low-income countries. The low coverage of health workers is a challenge, but more attention is needed to the quality of services provided. Poor services can be worse than no services and do harm, so the role of a competent health worker in the community, accessible to all adolescents, carrying out health promotion as well as clinical services can impact adolescents' health and opportunity. Health promotion and clinical services can lower the number of unwanted pregnancies and early marriages which again might lead to increase in school attendance and opportunities later in life. Finally, breaking this negative cycle will

have impact on the whole community if adolescents grow into productive and healthy community members.

2.7 Study goal and aims

The study will analyse the relationship between the work environment, motivation, and attitudes in the context of health workers providing sexual and reproductive health services towards adolescent girls. The goal of the research is to contribute with more evidence for what intervention design and approaches to capacity strengthening of the health work force can change harmful and judgemental attitudes towards adolescents. Two factors of the work environment, supportive supervision and clarity in goal and purpose of the work at the health clinics, will be analysed in terms of its impact on motivation and attitudes of health workers.

Three forms of motivation will be included to explore if motivation is influenced by the work environment, and the ways in which the three forms of motivation are influencing attitudes. The three forms of motivation included are altruistic motivation, societal motivation and financial motivation. Two forms of attitudes will be analysed, health workers' attitudes towards adolescent girls seeking sexual and reproductive health services, and attitudes of health workers towards sexual- and intimate-partner violence.

The hypothesis is that factors in the work environment such as supportive supervision and clarity of goal and purpose at the health clinics, can have an impact on motivation and on attitudes. The overall research question is: Does improvement in the work environment by supportive supervision and clarity in goals and purpose have an impact on attitudes towards adolescent girls and on attitudes towards sexual- and intimate-partner violence, and is this impact mediated by factors of motivation? The analyses will reveal if we can find direct impact of the work environment on attitudes, or if the impact of the work environment is fully or partially through improvement in factors of motivation.

3. Methodology

3.1 Study design

The health worker survey applied in this study originates from a more extensive mixed methods intervention study to evaluate the feasibility, acceptability, and effectiveness of a package of interventions implemented by Catholic Organization for Relief and Development Aid (Cordaid) in collaboration with national partner Réseau National des ONG pour le Développement (RENADEF) to improve health workers performance. University of Kinshasa is leading the process evaluation with technical support from the WHO (Bastien et al., 2022). The intervention has taken place in Kinshasa and Kasai Oriental province and three health zones in each province.

The health worker survey is a descriptive cross-sectional survey designed to capture health workers perceptions at a point of time. The perceptions are linked to the intervention they are participating in, the work environment they are working in, their motivation to carry out the health services, and their attitudes towards adolescents and towards sexual and intimate-partner violence. Cross-sectional surveys are much utilised in public health since it can capture what is happening in a population at a certain point of time, it is relatively inexpensive compared to other methods. It can capture multiple variables, such as age, gender, education, training as well as perceptions such as the ones mentioned above. It is therefore a much utilised tool for descriptive studies. Casual relationships can be established by use of cross-sectional survey methods, but use of experimental methods or longitudinal studies is often preferred to follow up on findings and to provide stronger evidence. Descriptive surveys such as cross-sectional surveys can provide analysis of casual relations between variables by use of conceptual models and theory as well as statistical methods (Aarø 2007). The time-series approach can build evidence for impact of the intervention over time and the aim was for respondents to participate in all of the round of data collection.

3.2 Sample

30 health clinics were selected from six health zones in the two provinces of Kinshasa and Kasai Oriental. Three health zones in Kinshasa, the capital of DRC, and three health zones in Mbuji, Maji, the provincial capital of Kasai Oriental (Eastern Kasai).

Inclusion criteria for selecting the health clinics in the programme intervention, and later in the health worker survey, were the prevalence in the community of HIV among young women aged 15-24 years old and accessibility for the project staff.

A criterion was also the pre-existence of the integrated health services, specifically including HIV-SRH services. The health zones and clinics selected for study has been exposed to interventions in the past with funding from the GFATM to the health services (Bastien et al., 2022).

The clinics are participating in the intervention where activities are ongoing to “a) improve health workers knowledge and skills in providing SRH services to adolescents and to build positive attitudes regards the provision of SRH services to adolescents; and b) create and enabling work environment for building health workers’ motivation to apply their competencies and positive attitudes towards the provision of SRH services to adolescents” (Bastien et al., 2022).

The selection process of the clinics with the health workers to participate in the survey was also concerned with likelihood that the respondents may participate over time considering the challenges with retention of health workers. The plan was to include minimum two health workers from each clinic, for a minimum sample of 60 health workers, but seek to include as many as possible of the health workers receiving the training ongoing in the intervention. The health workers would be women and men, newly recruited or having worked for many years at the clinics, they might be in early 20-ties to above 55 years old. They may have had different forms of training in the past, including no specific training to provide services for adolescents and women. Some are clinic managers with no or few clients, while others are seeing clients regularly.

While there are some differences between the two provinces, they have similarities such as being large urban cities that are linguistically diverse.

3.4 Survey design

The survey was six pages long in addition to a front page with purpose of survey and information about confidentiality. The full English version of the survey template is attached (Attachment 2).

On the front page, the location and date of response, and respondents ID numbers were recorded to be coded at the point of data entry and according to ethical guidelines on safe digital storage of personal information. Also on the front page there were three initial items to record what health facility the respondent is working at, its location and sex of respondents. The survey is then organised in six main sections with 73 survey items, in addition to initial items on place and gender.

Table 1. Health worker survey overview

Health Worker Survey overview		
Sections	Sub-sections and items	Response option
Initial information about the survey and key information (3 items)	Questions for the data collector on place and date, and respondent ID number/code was on the front page. Name of health facility, town/city and sex. And space for entering a code for the respondent.	Names of facility and town/city written Binary: Female/male
1. Section with general information (12 items)	12 items organised in 5 sub-sections about length of employment at facility, average number of clients per week, age, training, and questions on the intervention eight items relates to forms of training.	Number of years/months to be filled in. Number of clients organised in an interval scale with five options starting with “not seeing clients” to “60 or more”. Age scale with five options starting with “less than 25 years old” to “55 years or older”. Binary yes/ no questions about forms of training specifically for care for adolescents and women. Binary yes/no about forms of training attended
2. Section on motivation (18 items)	The questions were not organised in sub-sections. Questions range from asking about enjoyment over work tasks, finding work interesting, about pride, values, reputation, appreciation salary, salary, to job security, etc.	Five points Likert scale from “not important at all” to “not very important”, “somewhat important”, “important” and “extremely important”.
3. Section on work environment (26 items)	The items were not organised in sub-sections. Questions range from clarity in job duties, responsibilities, guidelines, to access to training, relations to supervisor. to colleagues, participation in decision making, pride and satisfaction.	Five points Likert scale from «Strongly disagree”, to “disagree”, “not sure”, “agree” and “strongly agree”.
4. Section on attitudes towards adolescents (8 items)	Items concerned with unmarried adolescents, what kinds of advice to give them concerning contraceptives, abstaining from sex, right to reproductive health information, family planning.	Five points Likert scale from «Strongly disagree”, to “disagree”, “not sure”, “agree” and “strongly agree”.
5. Section on attitudes towards sexual violence and IPV (8 items)	Items concerned with assumptions about the role of health worker and about adolescent survivors of violence.	Five points Likert scale from «Strongly disagree”, to “disagree”, “not sure”, “agree” and “strongly agree”.
6. Section on perception of the package of intervention (8 items)	Items concerned with perception of supportive supervision, mentorship, feedback, collaborative learning, problem solving, confidence on the job and support among health workers.	Five points Likert scale from «Strongly disagree”, to “disagree”, “not sure”, “agree” and “strongly agree”.

The first item /was related to employment history and respondents could answer in years and months, enabling also to capture newly recruited respondents. The items asking how many clients is cared for by the health worker per week had five options where one had to be circled starting from “currently not seeing clients” to “less than 20”, to “20-39, “40-49” and “60 and more”. These were followed by a demographic question on age with four age categories to choose from starting with “less than 25 years old”, “24-34 years old, 35-44 years old” and “55 year or older”. Respondents were asked about training, and first a question asking if they have any training on how to provide care specifically for adolescents and women. The initial items ended with 8 items about what kinds of training the respondent had had with yes or no respond options, but with one open-ended questions where respondents could add other trainings received.

Eighteen survey items addressed health workers motivation and were not organised in sub-sections. Respondents replied according to a five points Likert scale where options were “Not important at all”, “Not very important”, “Somewhat important”, “Important” to “Extremely important”. All the survey items in the section about motivation were positively phrased. The items inquired about enjoying work tasks, finding work interesting, interacting with people, questions on making a difference in people’s lives, values, pride, and reputation as well as importance of financial security.

Twenty-six survey items addressed the work environment and were also not organised in sub-sections. Respondents indicated the degree to which they agree with statements. The five points Likert scale included “Strongly disagree”, “Disagree”, “Not sure”, “Agree” and “Strongly agree“. Eight of the twenty-six survey items were negatively phrased (no 26, 30, 31, 32, 33, 34, 39, 46). Items inquired about the organisation of work, work tools, supervision, clarity in goals and purpose, to questions of support from management and peers, as well as questions about pride, fairness for rewards, overall satisfaction of work, clarity in goals if the health facility, or intention to leave the health facility and lack of respect.

There were eight survey items under the headline “Attitudes towards adolescents”. This section did also not have sub-sections. The response was to a five points Likert scale ranging from “Strongly disagree” to “Strongly agree” as in the section concerning work environment. The items were related to attitudes about adolescent girls and sex, and the right to access

contraception prior to marriage, about girl pregnancy and school attendance and promiscuity. Three questions were negatively phrased (no 50, 53, 57). One question was ambiguous:

54. My personal beliefs influence my ability to provide sexual and reproductive health information and services to adolescents.

It was not clear whether the question was a positively or negatively phrased question without adding interpretations and judgements to the role of faith for willingness to provide quality services according to adolescents' own preferences. Faith of respondents was not included as a category in the survey initial general section.

Furthermore, another section of survey items was concerning attitudes towards sexual violence and Intimate Partner Violence. The five points Likert scale as above was used for collecting the responses ranging from "Strongly disagree", to "Strongly agree". Six of the eight questions were negatively phrased. The items in the section were related to how the health worker would respond to adolescent girls or women who has suffered from partner violence, about blame and shame, and if the health worker is comfortable talking to adolescents about violence.

Finally, eight questions inquired about the participants' perceptions of other components of the package of interventions. These items measured perceptions of the components of the package of intervention, such as supportive supervision and collaborative learning. The same five points Likert scale as in the previous sections was used ranging from "Strongly disagree", to "Strongly agree". The items related to communication with the health workers manager, about greater emphasis on mentorship and facilitation, about constructive feedback, and collaborative environment, about group problem solving, confidence and motivation and that this had improved since the introduction of training on supportive supervision and collaborative learning. All the questions were positively phrased.

3.3 Data collection and preparations of data

The tools for data collection had been tested among 20 health workers at health facilities that are not participating in the intervention and adjustments were made (Bastien 2022).

Local research assistants had been recruited and trained by University of Kinshasa, with technical support from WHO for the training. Data collection was carried out in French.

The dataset received for this study is the baseline data collected in December 2021. 171 (n=171) respondents completed the survey during this first round of data collection.

The data was entered into a database with codes for the respondents to ensure their data protection for the participants.

Package for the Social Sciences (IBM SPSS) was used to explore, structure, and analyse the data. The data file was received and downloaded as a SPSS .sav file, received from NMBU researcher engaged in the research collaboration and thesis supervisor.

Each step in the data handling, and in developing of the variables which will be described below, was recorded in a table to register the steps, its findings, and a new datafile was saved for each step. There were no missing values.

The first step in the data handling was to label the items with label code and label names. The 17 negatively phrased survey questions were identified and reversed by the reverse function in SPSS. The reversed question were survey questions 26, 30, 31, 32, 33, 34, 39, 46, 50, 53, 57, 59, 60, 61, 62, 64, 65 and they were relabelled with a “r” at the end of the variable name to easily recognize them later in the data analysis (V26t1r, etc). For sake of simplicity, I will refer to the survey items with the number only. The survey item that was considered as ambiguous was excluded (54). The data file was saved as “DRC dataset 1 reversed questions”.

3.4 Cronbach’s Alpha for internal consistency

Cronbach’s Alpha (α) is considered one of the most common statistical methods to measure internal consistency (Aithal and Aithal 2021). It is a statistical method to measure the inter-correlation of the survey items. The methods will be used to measure the consistency between the items when building the variables in the analysis of work environment, motivation and attitudes. An Chronbach's Alpha value equal to or higher than nine is considered high internal consistency while an Chronbach's Alpha value equal to or lower than 5 is considered not having internal consistency. The following scale will be used:

Table 2: Interpretation of Chronbach's Alpha from Aithal and Aithan (2021:7)

CA Value	Degree of Reliability
$CA \leq 0$	A serious problem in the design of the questionnaire.
$0 < CA < 0.5$	Low internal consistency and hence poor inter-relatedness between items.
$0.5 < CA < 0.7$	Moderate internal consistency and reliability of a given questionnaire.
$0.7 < CA < 0.9$	High internal consistency and reliability in a given questionnaire.
$0.9 < CA < 1.0$	Questionnaire items may be redundant, may be repeated questions in multiple ways.
$CA = 1.0$	Perfect internal consistency in a given questionnaire.

Using these cut off values, we will consider 0.5 and higher as moderate internal consistence, and acceptable for carrying out the analysis. The lower the values below this cut of point, the less likely the internal consistency between the variable will be.

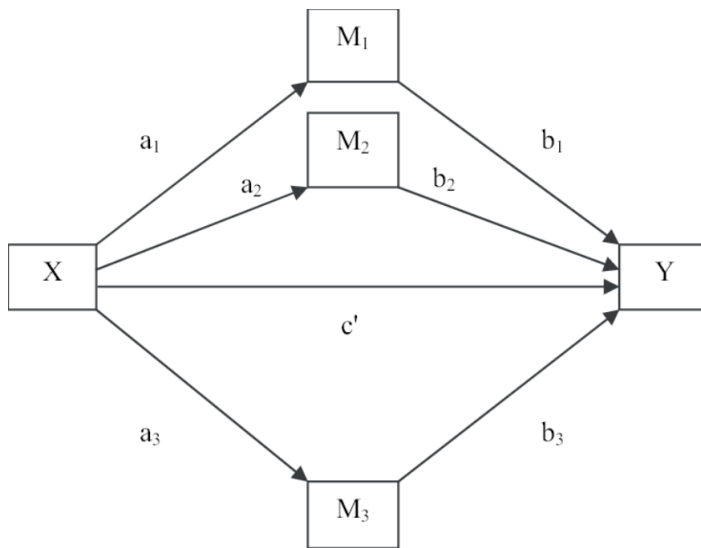
3.5 Explorative Factor Analysis

Within each survey section of the survey concerning work environment, motivation, attitudes towards adolescents, attitudes towards sexual and IPV, and perceptions of the intervention, the number of items varied from eight to twenty-six. Explorative Factor Analysis (EFA) was used as a statistical method to identify what items reliably cluster with other items and may form a possible variable. Variables were explored by creating scree plots to view how many potential underlying clusters of items within a section in the survey. Rotated correlation matrix help identify these. Finally, varimax was used to simplify the column of the rotated correlation matrix. Loading close to 1.0 indicate that the items strongly influence the potential variable. Values below 0.10 was suppressed since these are considered insignificant.

3.4 Parallel mediation hypothesis and analysis

Parallel mediation analysis was selected as statistical method for analyse the relationship between the independent variables and the dependent variables, factoring in intervening variables. The PROCESS v4. 2 by Andrew F. Heyes was selected for the analysis since its model 4 can process multiple mediating variables. The PROCESS by Hayes can also overcome the relatively small sample size, and the tool allows for bootstrapping the data. The data could be bootstrapped at 5000. It will therefore not be necessary to make assumption about normally distributed data. The model 4 is illustrated below.

Figure 3: Statistical diagram of the parallel multiple mediation model with three mediators



Parallel mediation is particularly useful to explain the relationship between an independent variable, such as variable concerning work environment, and a dependent variable, such as in this case the variable concerning attitude. The parallel mediation model can include intervening variables, such as the variables of motivation.

3.4.1 Hypothesis of the parallel mediation analysis of work environment, motivation and attitudes

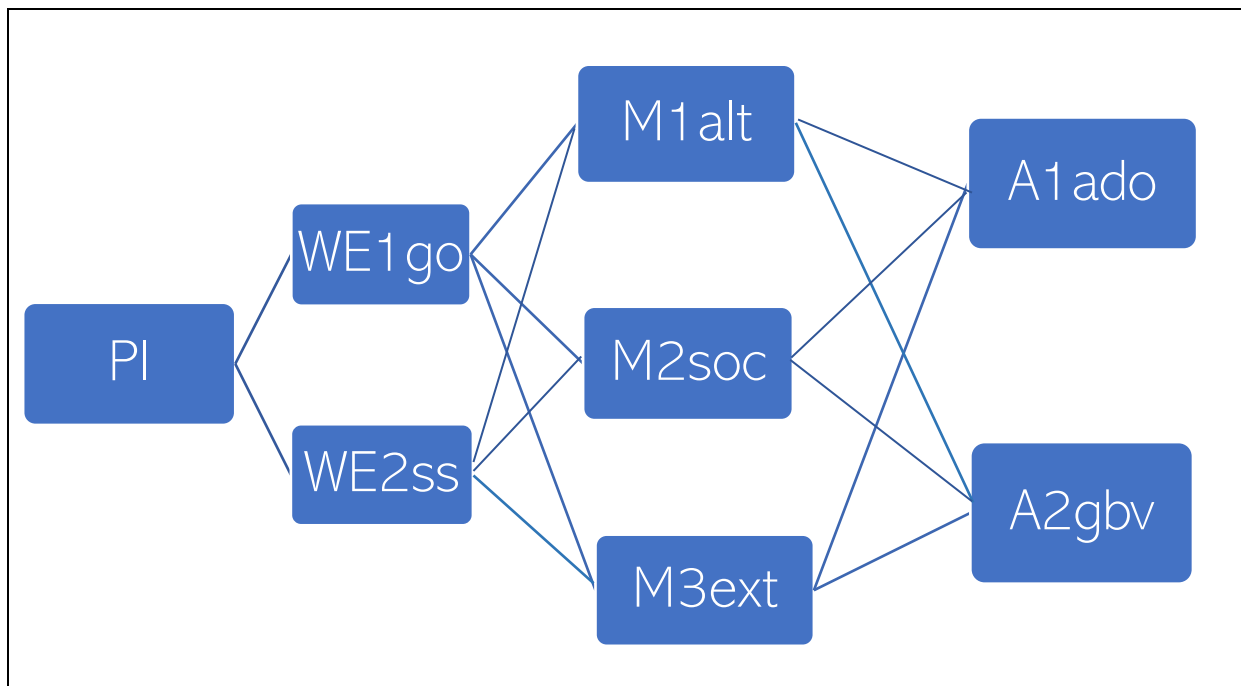
By positively affecting the work environment through an intervention programme, motivation of Community Health Workers can be influenced, and attitudes can be positively changed. While organizational changes such as improving the work environment by clear goals and purpose (WE1go) can have an effect, literature supports that improving the work environment by supportive supervision and collaborative relations (WE2ss) might be a stronger influencer on motivation of health workers and their ability to improve services to patients.

In the first chapter it is argued that altruistic motivation (M1alt) is expected to have a stronger effect on attitudes towards work such as attitudes towards adolescents seeking SHR services (A1ado) and attitudes towards sexual and intimate partner violence (A2gbv). To measure the mediating effect of motivation on the relationship between work environment and attitudes can provide evidence for what forms of interventions can affect motivation and subsequent change attitudes towards adolescent girls seeking SRH services, and towards attitudes concerning gender-based violence and intimate partner violence.

The perception of the intervention (PI) is concerned with the actions implemented that target a change in the work environment by more clarity in goals and purpose (WE1go), and by a change in management style to more supportive supervision and a more collaborative work (WE2SS).

The variables that are constructed form items in the health workers survey are illustrated in figure 4.

Figure 4: The variables and its relationships



Six hypotheses were formulated about the relationships between the variables in figure 4. These hypotheses will be tested and results presented in the results chapter.

Hypothesis 1 (H1):

Factors of motivation (M1alt, M2soc, M3ext) have a mediating effect on the relationship between work environment supportive supervision (WE2ss) and attitudes towards adolescent girls seeking SRH services (A1ado).

Hypothesis 2 (H2):

Factors of motivation (M1alt, M2soc, M3ext) have a mediating effect on the relationship between work environment with clear goals and purpose (WE1go) and attitudes towards adolescent girls seeking SRH services (A1ado).

Hypotheses 3 (H3):

Factors of motivation (M1alt, M2soc, M3ext) have a mediating effect on the relationship between work environment supportive supervision (WE2ss) and attitudes towards gender-based violence (A2gbv).

Hypothesis 4 (H4):

Factors of motivation (M1alt, M2soc, M3ext) have a mediating effect on the relationship between work environment clear goals and purpose (WE1go) and attitudes towards gender-based violence (A2gbv).

Hypothesis 5 (H5):

Factors of work environment (WE1go, WE2ss) have a mediating effect on the relationship between Perception of the intervention (PI) and attitudes towards adolescent girls (A1ado).

Hypothesis 6 (H6):

Factors of work environment (WE1go, WE2ss) have a mediating effect on the relationship between Perception of the intervention (PI) and attitudes towards gender-based violence (A2gbv).

3.5 Research Ethics

The research and data-collection plan, including the plan for a health worker's survey, was approved by the WHO Ethics Review Committee (WHO-ERC) on 2nd of November 2020. A data sharing agreement between the University of Kinshasa and the NMBU has been approved by the WHO and fully anonymized and encrypted dataset was received for this analysis in line with the privacy regulations of research participants. Informed consent was obtained at the time of data collection.

The study does not require approval by the Norwegian Regional Ethical Committee (REK) since the research is concerned with quality of health services and since the study involved the analysis of a dataset obtained and managed by other researched, it does not require approval from the Norwegian Centre for Research Data (NSD).

The “International Ethical Guidelines for Health-related Research Involving Humans” provides ethical guidelines on conducting research in low-resource settings (CIOMS, 1016). Key ethical principles relevant for this study are related to social value, scientific value, fairness of research, responsiveness of the community and risks to individuals and facilitators.

The WHO-ERC did have a remark on the research proposal that led to a conditional approval. The condition was related to the fairness of the research in low-resource settings. The WHO-ERC commented that they would like the research to consider even more strongly the structural reasons for inadequate services reported by adolescent clients. The concerns were with the overwhelmed front-line workers, organisation of services, poor salaries, lack of professional development opportunities etc. This comment by the WHO-ERC has been considered when discussing the findings.

4. Results

4.1 Internal consistency and reliability of variables and items

When developing the three variables for motivation, several options were first explored. The total number of variables were eighteen, and they had high internal consistency as a group (CA=0,877). The interest of the study, the intention was to understand better different forms of motivation and the variables were explored further to find underlying patterns. This is also consistent with having a CA close to 0.9, since above 0.9 might indicate that many variables in the model statistically bring the CA up towards 1, while internal consistency is not necessarily higher.

When carrying out an EFA on the 18 variables, the EFA scree plot suggest 3-4 factors. To finally decide on the variables for motivation, definitions of motivation in the conceptual framework and literature defining concepts were revisited. The variable for individual “altruistic motivation” was developed from four items that items consistent with definition of concept, the items were together in the EFA rotated component matrix and the CA showed moderate internal consistency.

The second motivational variable was developed from a cluster of six variables from the EFA that were linked to a form of external motivation. Four of the items had to do with recognition, pride and appreciation from the community, and such form a factor for “societal motivation” where motivation is driven from feedback, recognition, and respect from the community. CA for the four variables had high internal consistency.

The EFA suggested a second cluster of variables related to extrinsic motivation. These were variables related to motivation from financial security such as salary and benefits., with one additional variable clustered with these in the rotated component matrix related to recognition from supervisor (20) and did not fit the concept of “financial motivation”. Three items were selected to form the variable for financial motivation by salaries and benefits. The items had an high internal consistency.

Table 3: Variables for motivation, its items and CA

Variable	Survey items	CA
Altruistic Motivation (M1al)	8. Because I like challenges I face in my work. 10. Because being a health worker is a fundamental part of who I am. 11. Because my work is more than a job, it's a mission. 17. Because it is my duty to care for my patients.	0.614
Societal Motivation (M2soc)	13. Because I want to make a difference in people's lives. 15. Because my reputation depends on my work. 16. Because my work makes me feel proud of myself. 17. Because of the appreciation I receive from my patients and the community.	0.743
Financial Motivation (M3ex)	21. Because of the benefits that come with my job 22. In order to be able to provide for my family 23. Because of the financial security the job provides me with	0.781

The factors for work environment were developed by first carrying out an EFA including the twenty-five items in the survey to explore ways to reduce the section items and cluster them according to the concepts of concern to this study. The twenty-five items had moderate internal consistency. The EFA scree plot suggested that the items may form eight factors and the values and items were considered in the rotated matrix. Looking at the variables that the EFA suggested were linked, they did not instantly reveal patterns that would suggest potential variable constructs that also could reflect the concepts underlying the theory of the intervention. For example, the rotated matrix did not suggest many items linked to supportive supervision as a variable, and neither for collaborative learning, two key concepts in the underlying change theory for the intervention design. The eight factors suggested by the rotated matrix were not all conceptually close to each other.

Only two items, that were clustered together in the rotate component matrix were therefore chosen to form a variable for work environment and clear goals and purpose for the health clinic (see table below). In the effort to form a factor on work environment and supportive supervision, the five items that were related to this concept and had high internal consistency with a CA above 0.7. However, carrying out an EFA, the items were loaded, and items did not cluster together as expected. A variable was therefore rather formed from four items (see table below) that did cluster together, and that were related to feedback, using new tools, getting on well with staff and supervisor. This means that only six items were used from the original twenty-five variables in the health worker survey.

Table 4: Variables for work environment, its items and CA

Variable	Survey items	CA
Work Environment with clear goals and purpose (WE1go)	40. Our facility has clear goals that we are working towards. 43. I understand how my work contributes to the facility's overall goals.	0.604
Work Environment supportive supervision (WE2ss)	36. The feedback I get from my manager helps me to improve my work. 41. I am keen to use any new tool to improve my performance. 48. I try to get on well with the other health staff because it makes the work run more smoothly. 49. I get on well with my superiors at work.	0.742

When developing the outcome variable concerned with attitudes towards adolescents, the eight items in the survey section did not have an acceptable CA. Three of eight survey questions were negatively phrased, and this might possibly have affected the pattern of response and may have caused confusion. One ambiguous variable was excluded (54). When reducing the variables to six variables, the CA reached a moderate internal consistency which was considered acceptable for the study. A variable was therefore formed from six items. For future survey development, the formulation of the survey items might need to be re-considered to raise the internal consistency of items in a variable from moderate to high internal consistency for the variables that might serve the concept constructs that is important to the intervention. For example, considering the rejected item (54), here were also other variables that might have been perceived differently such as the two that included the strongly negatively loaded characteristics of girls possibly being “promiscuous” if given contraceptives before marriage, or if having identified an ulcer. Further piloting of these items in the local context may potentially have contributed to more clarity and possibly more reliable and internally consistent responses.

Table 5 Variable for attitudes towards adolescent, its items and CA

Variable	Survey items	CA
Attitudes towards adolescents (A1ado)	50. I would first recommend unmarried adolescent girls to abstain from sex when they ask for contraception. 51. If a schoolgirl is sexually active, she should be allowed to use contraceptives. 52. Adolescents should be given contraceptives information and counselling before 53. they become sexually active. 53. Providing contraceptives towards unmarried adolescents promotes sexual promiscuity. 55. Adolescents have the same rights to family planning information and services as any other older or married clients. 56. A pregnant girl should be allowed to continue school.	0.591

The health workers survey had eight survey items concerned with attitudes of health workers towards sexual violence and inter-partner violence. The CA of the eight variables had a very low internal consistency (CA=0.269) that could not be accepted. Six of the eight questions

were negatively phrased, that might have impacted the internal consistence of the ways in which participants responded. By taking out variables 63, the CA was raised to moderate internal consistency. No combinations of items would reach a higher internal consistency. Despite the methodological weakness accepting moderate internal consistency, the choice was made to form a second outcome variable concerned with attitudes towards sexual and IPV formed from seven items.

Table 6 Variable for attitudes towards sexual violence, its items and CA

Variable	Survey items	CA
Attitudes towards sexual and IPV (A2gbv)	58. As a health worker, how I respond to an adolescent/young woman who has suffered violence from a partner or sexual abuse is very important. 59. An adolescent/young woman subjected to violence will deny that she has been abused if I ask her about it. 60. Intimate partner violence is a private matter and outsiders should not interfere. 61. Sometimes, being abuse, assaulted or raped is the woman's own fault. 62. If the woman had defended herself, she could have avoided being raped. 64. If a woman does not leave her violent partner, she deserves to be abused. 65 I would feel uncomfortable asking an adolescent/young woman about violence.	0.545

A final variable was formed from the perception of the intervention. The eight items were internally consistent with high internal consistency. The EFA and the rotated component matrix did also not suggest more than one variable. The eight items were therefore selected to form a variable for "Perception of the Intervention".

Table 7 Variable for perception of the intervention, its items and CA

Variable	Survey item	CA
Perception of the Intervention (PI)	66. Communication with my manager had improved since the introduction of supportive supervision. 67. There is greater emphasis on mentorship and facilitation since the introduction of supportive supervision. 68. I receive more constructive feedback from my manager since the introduction of supportive supervision. 69. My motivation to perform my job has increased since the introduction of supportive supervision. 70. There is a more collaborative learning environment at this health facility since we started using the collaborative learning model. 71. Health workers at this facility solve problems as a group rather than alone now as a result of the collaborative learning model. 72. My confidence in my ability to perform my job and provide quality care to adolescents had improved since the introduction of the collaborative learning model. 73. The collaborative learning model has helped to ensure a system of support among the health workers.	0.975

This was how eight factors were formed from groups of variables that could be proven internally consistent with each other by use of Cronbach's Alpha and Explorative Factor Analysis in SPSS.

4.2 The population

There were 117 respondents to the base-line survey (n=117). 45,3 per cent of the respondents were women and 54,7 per cent were men. The employment history of the respondents ranged from 30 years and 4 months at the health facility, to six months employment at the health facility. The median number of clients per week was 15, ranging from 1- 125 per week.

The age of the respondents varied. 14,5 per cent responded that they are less than 25 years old, while 24,5 per cent responded they were between 25 and 34 years old, 33,3 per cent responded they were between 35-44 years old, 19,7 per cent between 45-54 years old and 7,7 per cent were 55 years or older. This means that all ages were represented in the group of respondents.

57,3 per cent of the health workers replied no to the question if they had had any training on how to provide care specifically for adolescents and women, while 42,7 percent responded yes. 56,7 percent responded that there had been made changes to their job descriptions related to the provision of care to adolescents in the last months, while 43,3 per cent responded no. Furthermore, 65,2 per cent responded yes to the survey item asking if there had been any new job aids such as checklists, guidelines or other support tools introduced at your health facility related to the provision of care to adolescents in the last 6 months. 34,3 per cent answered no. There were 50 missing values.

Also, 61,2 per cent responded that they had received supportive supervision over the last 6 months that was different in content and tone in comparison to what they received before from the health facility manager. Here, there were also 50 missing values.

The initial general information, despite the inaccuracy with regards to missing values, confirmed that a considerable number of the respondent has already been exposed to some activities in the intervention.

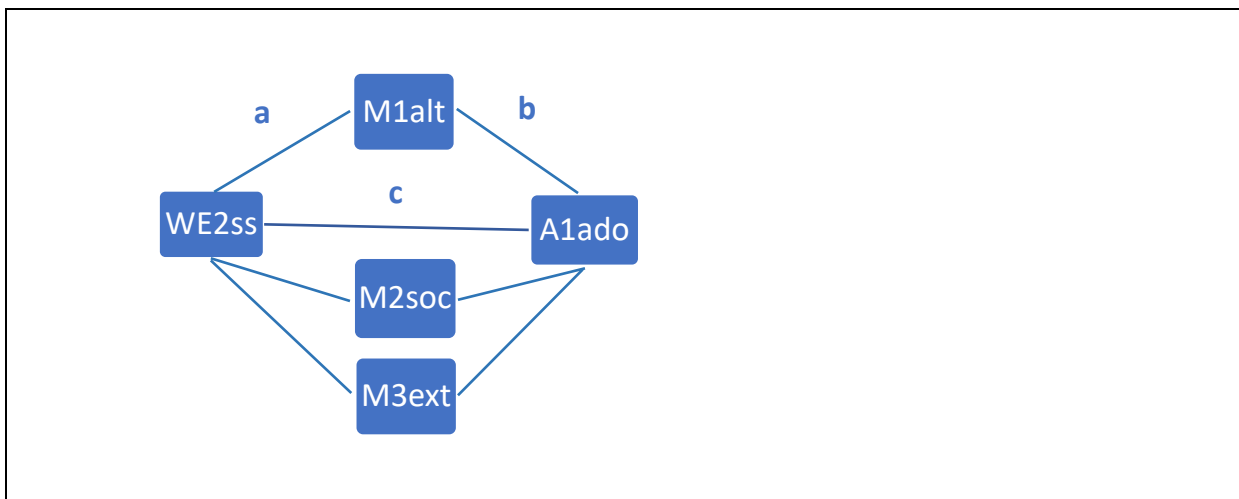
4.3 Parallel mediation analysis of the relation between the work environment and attitudes towards adolescent girls and the mediation effect of motivation

A parallel mediation analysis was performed using Hayes process macro model 4 for multiple mediators (5,000 bootstrap samples; bias-corrected confidence intervals 95%, estimated and reported). The first hypothesis (H1) was tested: The input variable was Work Environment and supportive supervision (WE2ss), while the outcome variable, or the dependent variable,

was Attitudes towards adolescent girls accessing to SRH services (A1ado). There mediators were the three factors of motivation (M1alt, M2soc, M3ext). The figure 5 illustrate the factors in the first hypothesis (H1):

Factors of/ motivation (M1alt, M2soc, M3ext) have a mediating effect on the relationship between work environment supportive supervision (WE2ss) and attitudes towards adolescent girls seeking SRH services (A1ado).

Figure 5: Variables in the parallel mediation for H1



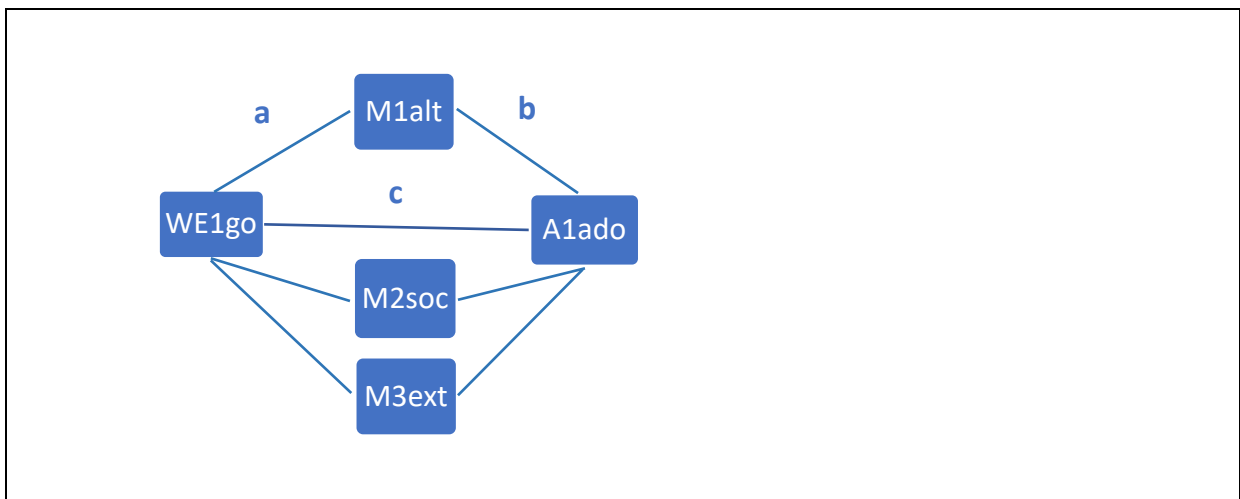
The result revealed no indirect effect of altruistic motivation (M1alt) ($b = -.07$, $SE = .13$, 95% LLCI = $-.32$, 95% ULCI = $.18$), neither of societal motivation (M2soc) ($b = -.0037$, $t = .9662$), or extrinsic motivation by salaries and benefits (M3ext) ($b = .0280$, $t = .4297$), on the relationship between work environment supportive supervision (WE2ss) and attitudes towards adolescent girls seeking SRH services (A1ado). The H1 hypothesis was therefore not supported by the data.

However, some other significant findings were found. The results revealed a direct effect of work environment supportive supervision (WE2ss) on attitudes towards adolescent girls seeking SRH services (A1ado) ($c = .5297$, $t = 3.376$). There was also a direct effect of the work environment supportive supervision (WE2ss) on altruistic motivation (M1alt) ($a = .3376$, $t = 2.6606$).

The second hypothesis (H2) explores if there is a mediating effect of motivation on the relations between the other factor for work environment: work environment and clear goals and purpose (WE1go). The figure 3 illustrated the factors in the Hypothesis 2:

Factors of motivation (M1alt, M2soc, M3ext) have a mediating effect on the relationship between work environment with clear goals and purpose (WE1go) and attitudes towards adolescent girls seeking SRH services (A1ado).

Figure 6: Variables in parallel mediation for hypothesis H2



The result revealed no indirect effect of altruistic motivation (M1alt) ($b = -.0128$, $t = -.0992$), neither of societal motivation (M2soc) ($b = .0110$, $t = .1225$), or extrinsic motivation by salaries and benefits (M3ext) ($b = .0056$, $t = .0838$), on the relationship between work environment with clear goals and purpose (WE1go) and attitudes towards adolescent girls seeking SRH services (A1ado). The H2 hypothesis was therefore also not supported by the data.

However, some significant findings were found. The results revealed a direct effect of work environment with clear goals and purpose (WE1go) on attitudes towards adolescent girls seeking SRH services (A1ado) ($c = .2668$, $t = 2.0302$). In this case, no direct effect between work environment with clear goals and purpose (WE1go) and altruistic motivation (M1alt) was found ($a = .1703$, $t = 1.5794$). The results for the two hypotheses can be found in table 1 below.

Table 8: Parallel Mediation Analysis Summary: Work environment and motivation and its effect on attitudes towards adolescent girls.

Relationship	Total effect	Direct Effect	Indirect effect	Confidence Interval		t-statistics	p-value
				LB	UB		
WE2ss>M1alt>A1ado	.5026			.2063	.7988	3.3605	0.0011
WE2ss>M1alt>A1ado		.5297		.2188	.8406	3.3760	0.0010
WE2ss>M1alt>A1ado			-.0240	-.0996	.0745		
WE2ss>M2soc>A1ado			-.0011	-.0673	.0666		
WE2ss>M3ext>A1ado			-.0021	-.0392	.0362		
WE2ss>M1alt		.3376		.0863	.5889	2.6606	.0089
WE1go>M1alt>A1ado	.2664					2.0767	0.0401
WE1go>M1alt>A1ado		.02668				2.032	0.0447
WE1go>M1alt>A1ado			-.0022	-.0445	.0710		
WE1go>M2soc>A1ado			.0015	-.0459	.0462		
WE1go>M3ext>A1ado			.0003	-.0244	.0343		
WE1go>M1alt		0.1703				1.5794	0.1170

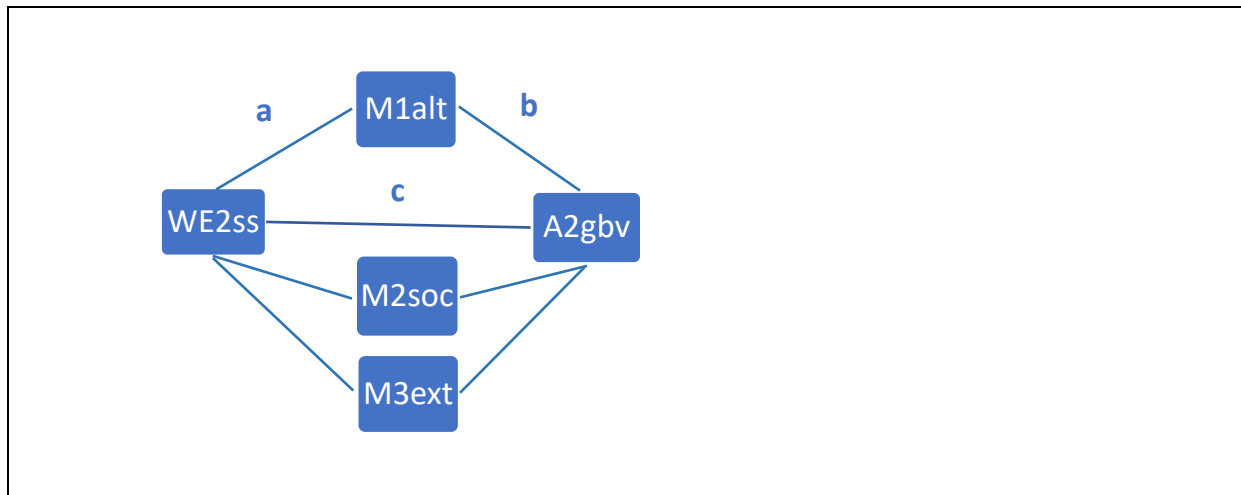
4.4 Parallel mediation analysis of the relation between work environment and attitudes towards sexual and IPV and the mediating effect of motivation

Parallel mediation analysis of the relation between the work environment and attitudes towards adolescent girls and the mediation effect of motivation

The next step was to analyse if there was a mediating effect of motivation on the relationship between the factor of work environment supportive supervision (WE2ss) and attitudes towards gender-based violence and intimate partner violence (A2gbv). The factors in the hypothesis 3 is illustrated in Figure 4.

Factors of motivation (M1alt, M2soc, M3ext) have a mediating effect on the relationship between work environment supportive supervision (WE2ss) and attitudes towards gender-based violence (A2gbv).

Figure 7: Variables in parallel mediation for hypothesis H3



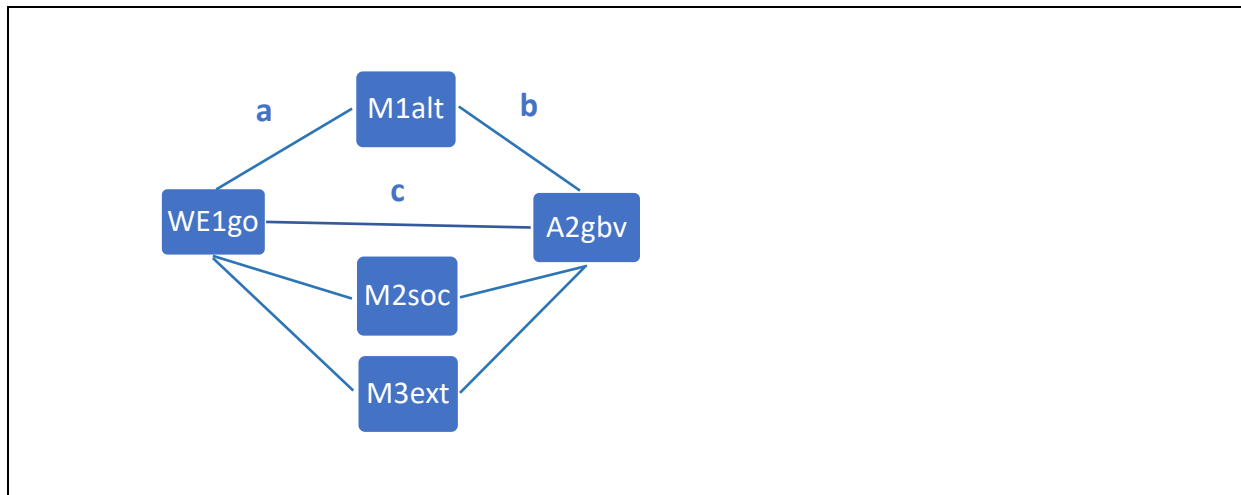
The result revealed no indirect effect of altruistic motivation (M1alt) ($b = .1306$, $t = 1.4441$), neither of societal motivation (M2soc) ($b = -.0296$, $t = -.4774$), or extrinsic motivation by salaries and benefits (M3ext) ($b = .0480$, $t = 1.0359$), on the relationship between work environment supportive supervision (WE2ss) and attitudes towards gender-based violence and intimate-partner violence (A2gbv). The H3 hypothesis was therefore also not supported by the data.

However, some significant findings were found. The results revealed a direct effect of work environment supportive supervision (WE2ss) on attitudes towards gender-based violence and intimate-partner violence (A2gbv) ($c = .4855$, $t = 4.3535$). A direct effect between work environment supportive supervision (WE2ss) and altruistic motivation (M1alt) was found ($a = .3376$, $t = 2.6606$). The results can be found in Table 2 below.

In the fourth parallel mediation, we wanted to analyse the mediating effect of motivation on the relationship between work environment and clear goals and purpose (WE1go) and attitudes towards gender-based violence and intimate partner violence (A2gbv). Figure 4 illustrated the factors in the hypothesis H4:

Factors of motivation (M1alt, M2soc, M3ext) have a mediating effect on the relationship between work environment clear goals and purpose (WE1go) and attitudes towards gender-based violence (A2gbv).

Figure 8: Variables in parallel mediation hypothesis H4



The result revealed no indirect effect of altruistic motivation (M1alt) ($b = .1709$, $t = 1.8867$), neither of societal motivation (M2soc) ($b = -.0173$, $t = -.2743$), or extrinsic motivation by salaries and benefits (M3ext) ($b = .0285$, $t = .6093$), on the relationship between work environment clear goals and purpose (WE1go) and attitudes towards gender-based violence and intimate-partner violence (A2gbv). The H4 hypothesis was therefore also not supported by the data.

However, some significant findings were found. The results revealed a direct effect of work environment supportive supervision (WE2ss) on attitudes towards gender-based violence and intimate-partner violence (A2gbv) ($c = .3517$, $t = 3.8161$). A direct effect between work environment supportive supervision (WE2ss) and altruistic motivation (M1alt) was not found ($a = .1703$, $t = 1.5794$). The results can be found in Table 2 below.

Table 9: Parallel Mediation Analysis Summary: Work environment and motivation and its effect on attitudes towards sexual violence and IPV.

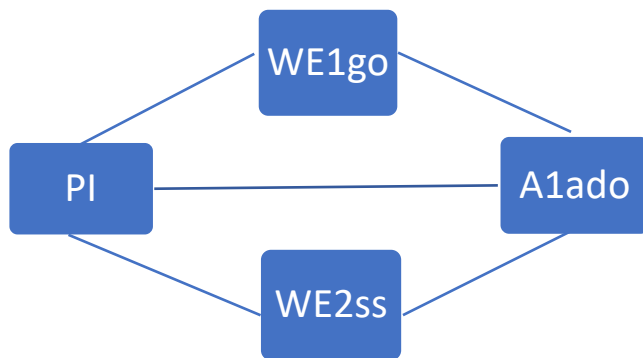
Relationship	Total effect	Direct Effect	Indirect effect	Confidence Interval		t-statistics	p-value
				LB	UB		
WE2ss>M1alt>A2gbv	.5174			.3035	.7312	4.7915	.0000
WE2ss>M1alt>A2gbv		.4855		.2645	.7065	4.3535	.0000
WE2ss>M1alt>A2gbv			.0441	-.0147	.1428		
WE2ss>M2soc>A2gbv			-.0087	-.0674	.0319		
WE2ss>M3ext>A2gbv			-.0035	-.0475	.0412		
WE2ss>M1alt		.3376		.0863	.5889	2.6606	.0089
WE1go>M1alt>A2gbv	.3799			.1976	.5622	4.1284	.0001
WE1go>M1alt>A2gbv		.3517		.1691	.5343	3.8161	.0002

WE1go>M1alt> A2gbv		.0291	-.0318	.1024		
WE1go>M2soc>A2gbv		-.0024	-.0464	.1233		
WE1go>M3ext>A2gbv		.0015	-.0237	.1331		
WE1go>M1alt	.1793		-.0433	.3839	1.5794	.1170

4.5 Parallel mediation analysis of the relationship between perception of the intervention and attitudes towards adolescents and the mediating effect of the work environment

Factors of work environment (WE1go, WE2ss) have a mediating effect on the relationship between Perception of the intervention (PI) and attitudes towards adolescent girls (A1ado).

Figure 9: Variables in parallel mediation hypothesis 5



The analysis assessed the mediating role of the two work environment mediators (WE1go and WE2ss) on the relationship between the perception of the intervention (PI) and attitudes towards adolescent girls (A1ado). The results revealed no significant direct effect between perception of the intervention (PI) and the dependent variable attitudes towards adolescent girls (A1ado) ($p=0.0608$). However, the total effect was significant ($c'=0.1243$, $p=.0101$). The results revealed that the mediation was through work environment supportive supervision (WE2ss) ($b=.4462$, $p=.0275$) and not through work environment by clear goals and purpose (WE1go) ($b=-.0213$, $p=.8968$). This means that the relationship between the perception of the intervention (PI) and the attitudes towards adolescents (A1ado) is fully mediated through the work environment supportive supervision (WE2ss).

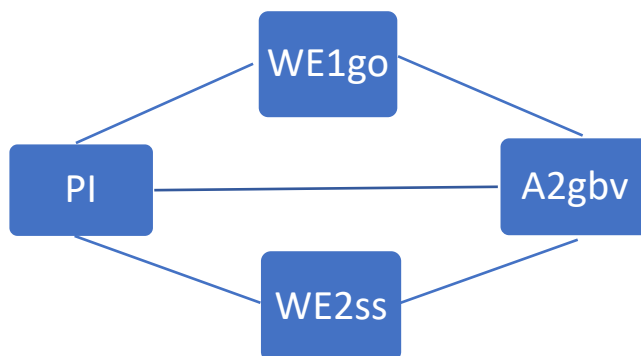
Table 10: Parallel Mediation Analysis Summary: Perception of the intervention and work environment and its effect on attitudes towards adolescent girls

Relationship	Total effect	Direct Effect	Indirect effect	Confidence Interval		t-statistics	p-value
				LB	UB		
PI > (WE1go, WE2ss) > A1ado	.1242			.0302	.2183	2.6162	.0101
PI > A1ado		.0907		-.0042	.1855	1.8940	.0608
PI > WE1go		.0678		-.0001	.1358	1.9769	.0504
PI > WE2ss		.0785		.0227	.1342	2.7871	.0062
PI>WE1go>A1ado			-.0014	-.0227	.0289		
PI>WE2ss>A1ado			.0350	-.0004	.0816		

4.6 Parallel mediation analysis of relationship between perception of the intervention and attitudes towards sexual and IPV and the mediating effect of work environment

Factors of work environment (WE1go, WE2ss) have a mediating effect on the relationship between Perception of the intervention (PI) and attitudes towards gender-based violence (A2gbv).

Figure 10: Parallel mediation analysis for H6



The analysis assessed the mediating role of the two work environment mediators (WE1go and WE2ss) on the relationship between the perception of the intervention (PI) and attitudes towards sexual violence and intimate partner violence (A2gbv).

The results revealed no significant direct effect between perception of the intervention (PI) and the dependent variable attitudes towards sexual violence and inter-partner violence (A2gbv) ($c = -.0445$, $p = .2001$). There is also no significant total effect between PI and A2gbv ($c' = .000$, $p = .9990$).

However, the results revealed mediation through indirect effect by work environment supportive supervision (WE2ss) ($a * b = .0327$) and not through work environment by clear goals and purpose (WE1go) ($b = -.0213$, $p = .8968$). This means that the relationship between the perception of the intervention (PI) and the attitudes towards adolescents (A1ado) is fully mediated through the work environment supportive supervision (WE2ss).

Table 11: Mediation Analysis Summary: The mediating effect of variables of work environment on the relationship between the Perception of the Intervention and attitudes towards sexual violence and IPV.

Relationship	Total effect	Direct effect	Indirect effect	Confidence Interval		t-statistics	p-value
				LB	UB		
PI>WE1go>A2gbv	.0000			-.0731	.0730	-.0013	.9990
PI>WE1go>A2gbv		-.0445		-.1130	.0239	-1.2888	.2001
PI>WE1go>A2gbv			.0118	-.0082	.0453		
PI>WE2ss>A2gbv			.0327	.0052	.0698		
PI>WE1go		.0343		-.0001	.1358	1.9769	.0504
PI>WE2ss		.0785		.0227	.1342	2.7871	.0062

5. Discussion

Adolescent girls are vulnerable to sexual and reproductive health challenges, and despite efforts to increase investment in adolescent girls' health, adolescent health remain a global health problem, particularly among the growing young population in low- and middle-income countries. An intervention strategy from key global health actors is to address the health workforce, and to build capable health workers, free of judgmental attitudes, that are able and willing to deliver “accessible, high-quality adolescent sexual and reproductive health (ASRH) services that meets the needs and preferences of adolescents” (Bastien et al, 2022:1). Motivation i.e. the health workers' “degree of willingness to exert and maintain an effort towards organisational goals” (Ormel et al., 2019:2) is therefore considered an important factor for improving adolescent health. The aim of this thesis was to analyse the relationship between work environment, motivation, and attitudes in the context of ongoing efforts to build attitudes towards adolescents. The underlying assumption is that improved attitude can manifested itself in improved SRH services and performance.

The conceptual framework of the analysis (figure 2) was adapted from Franco, Bennet and Kanfer (2002). In this framework, motivation is illustrated as a transaction between the individual, their work environment, and the community with its values and expectation. The framework illustrates that individual factors, social factors, organisational factors influence the individual motivational process. A statistical mediation model was applied to analyse work environment and motivational variables and its relation to attitudes by use of parallel mediation analysis. 171 health workers from 30 clinics in /DRC participated in the health survey. These were health workers participating in the intervention having worked minimum 6 months at the facility.

5.1 Work environment impacts attitudes of health workers

The analyses found that the work environment had a direct impact on attitudes of health workers. This was found both in the analysis of supportive supervision as a factor in the work environment and clear goals and purpose of the work in the health clinics.

This support the change theory that a work environment with supportive supervision can impact positively attitudes and performance, with supportive supervision being understood as supervision or mentorship available at the facility, provided by the health management and implemented by day-to-day support, facilitation, and regular feedback to the health worker

with the intention to enable improving performance (Renggli et al., 2018). Jazkievicz and Tulenko (2012) have argued that there are four essential elements necessary to provide an enabling work environment for health workers, and that one of the four is supportive supervision, in addition to a manageable workload, equipped facilities, and recognition from the community and official authorities.

Finding also support the argument that having clear goals and purpose of the facility communicated by management to both staff and the community can impact staff attitudes. This finding is supported by research on human resource management and that organisational changes, work tools can contribute to improve performance (Dielman et al., 2008:7).

The important role of the work environment was supported by the analysis from the health workers perception of the intervention, and the impact on attitudes. There a mediating effect of the work environment was found, supporting the argument that the work environment is an important factor for improving attitudes.

Altruistic motivation did not impact attitudes directly. However, work environment did impact altruistic motivation. Data in this research did not support the argument that altruistic motivation has effect on attitudes. Since an increasing body of empirical research is arguing for the important of altruistic motivation, the effect of altruistic motivation might be useful to test from data collected later in the implementation phase. The framework of Franco, Bennet and Kanfer (2002) supports an approach that multiple factors are influencing the health workers performance. In the underlying model for our thesis, work motivation is not an attribute of the individual or the organisations but motivation results from transactions between the individual and their work environment (Franco, Bennet and Kanfer, 2002 in Tynan 2013) supports the argument that work environment can support motivation, but also impact attitudes and performance directly.

5.2 Implication of the finding for the context and for the field of public health

The findings support the underlying assumption of the ongoing intervention, that work environment such as supportive supervision and communicating clearly goals and purpose of the work at the facilities may impact attitudes and ultimately the performance of the health workers. The thesis analysed baseline data and analysis of the next three datasets from the intervention, as well as the other components of the intervention research, will provide more

insight into the role of work environment, motivation, and attitudes for improving SRH services for adolescent in the two provinces in DRC.

Litt argue that much work done in high-income countries on the role of work environment on motivation and attitudes. More empirical research is needed with data from low-income countries considering the important of social and contextual factors.

5.3 Limitation of the study

There are limitations to the study. One is the acceptance level defined for internal consistency in the methodology chapter. Moderate internal consistency was defined as CA = 0.5-0.7 and considered as acceptable for values down to 0.5. The variables for attitudes were at the lower end of this range, and outcome variables with items with higher inter consistency might have given other results. Also, for the variable for work environment, items that would be supported by theory as consistent with the concepts, was not supported as acceptable by statistical methods. This might suggest that more rigorous testing of the survey design might be recommended.

Adolescent girls are considered a vulnerable group, and improved access to SRH services is considered a way forward to address this global health problem. A competent health worker sensitive to adolescents and free of judgemental attitudes can improve adolescent health. Improving the work environment of health workers by supportive supervision and clarity in goal and purpose of the clinics towards staff and the community can impact health workers attitudes. More research is needed to measure and analyse the role of motivation.

6. Conclusion

Empowering girls by providing access to sexual and reproductive health services such as access to modern contraception, knowledge of sexual transmitted disease, medical care, support to make informed choices, and referrals to services if subjected to violence and abuse, can lead to improved health and wellbeing for this age group. A component health worker free of bias and negative attitudes is therefore a strategy in achieving improved health outcomes for adolescent girls.

Judgemental attitudes among health workers are barriers to quality health services. In this study we explored relationships between the work environment and individual motivational factors that might impact health workers attitudes towards adolescent seeking sexual- and reproductive health services in the Democratic Republic of Congo.

More evidence and knowledge about ways to build a health sector with increasing numbers of capable, empathic, and motivated health workers that can deliver health outcomes for adolescents is needed. Health policymakers and implementers can benefit from more knowledge about ways to enhance health workers work environment, motivation, and attitudes as important in health systems strengthening.

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Annex 1: Survey for health workers

Location: _____

Date: _____ / _____ / 20_____

Day Month Year

Respondent ID number:

What is this survey?

- This survey is about your understanding and perspectives on the provision of health care to adolescents and women. Your responses will be used to improve this intervention to develop the skills, motivation and performance of health professionals on providing effective care for adolescents and women.
- This is NOT a measurement or appraisal of your work performance. Your answers will not affect your work or position in any way. The information collected through this survey will be analysed for the group as a whole, not individually.
- The information you provide here is confidential. You should not indicate your name on this page. Each participant is assigned an ID number/code. The surveys will be safely stored by WHO and the University of Kinshasa and no one else will have access to your survey.

We would greatly appreciate your help in responding to these questions. The survey should take approximately 20-30 minutes to complete. If you would like any questions explained or clarified, please do not hesitate to ask your facilitator.

Thank you for your collaboration.

Name of health facility: _____

Town/City: _____

Sex (please circle): 1. Female 2. Male

[For WHO/MoH collaborators -- Code: _____]

I. General information

1. How long have you been a health worker at this facility?

_____ years _____ months

2. Average number of clients you care for per week (Check/circle only one option):

- a. Currently not seeing clients
- b. Less than 20
- c. 20-39
- d. 40-59
- e. 60 or more

3. What is your age group? (Check/circle only one option)

- a. Less than 25 years old
- b. 25-34 years old
- c. 35-44 years old
- d. 45-54 years old
- e. 55 years or older

4. Have you had any training on how to provide care specifically for adolescents and women?

Yes

No -- Please go to question X

5. If you answered yes to the previous question, what kind of training have you had about providing care to adolescents and women?

(Check/circle Yes or No for each option)

- a. Have you watched a video? - Yes/No
- b. Have you attended a lecture or talk? - Yes/No
- c. Have you attended a skills-based training or workshop? - Yes/No
- d. Have you attended any collaborative learning sessions? – Yes/No
- e. Have you had any other training? (specify)
- f. Have any changes been made to the job descriptions related to the provision of care to adolescents at your health facility in the last 6 months? – Yes/No
- g. Have any new job aids such as checklists, guidelines or other decision support tools been introduced at your health facility related to the provision of care to adolescents in the last 6 months? – Yes/No
- h. Have you received any supportive supervision in the last 6 months that was different in content and tone in comparison to what you received before from your health facility manager?

II. Motivation

Why are you motivated to work? Please indicate how important each of these are for your work-related motivation.

	Not important at all	Not very important	Somewhat important	Important	Extremely important
6. Because I enjoy my work tasks.					
7. Because the work that I do is very interesting.					
8. Because I like the challenges I face in my work.					
9. Because I enjoy interacting with many people every day.					
10. Because being a health worker is a fundamental part of who I am.					
11. Because my work is more than a job, it's a mission.					
12. Because my work is extremely important for my patients.					
13. Because I want to make a difference in people's lives.					
14. Because this job fits my personal values very well.					
15. Because my reputation depends on my work.					
16. Because my work makes me feel proud of myself.					
17. Because it is my duty to care for my patients.					
18. Because of the appreciation I receive from my patients and the community.					
19. So I don't let my team down.					
20. Because my supervisor recognizes and appreciates me.					
21. Because of the benefits that come with my job.					
22. In order to be able to provide for my family.					
23. Because of the financial security my job provides me with.					

Work environment

Please indicate the degree to which you agree or disagree with each of the following statements.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
24. My job duties and responsibilities are clear and specific					
25. Relevant guidelines are easy to access at this facility					
26. I often feel left alone when I have to make difficult decisions about a patient's care					
27. I regularly have access to relevant trainings to keep my skills up to date					
28. My performance is appraised regularly					
29. Promotions do not depend on how well or badly one works on the job					
30. It is difficult for me to speak openly to my superiors about how things are really going at work					
31. Suggestions made by health workers on how to improve the facility are generally ignored					
32. The facility management shows very little concern for me					
33. Our rights as health workers are generally not respected					
34. I do not get feedback from my supervisors so it is hard to improve my performance					
35. The feedback I get from my co-workers helps me to improve my work.					
36. The feedback I get from my manager helps me to improve my work.					
37. Good performance is recognized by our superiors					

38. This facility has a fair system for rewarding staff					
39. Some of the team members work well, yet others do not and so this facility doesn't perform well overall.					
40. Our facility has clear goals that we are working towards					
41. I am keen to use any new tools to improve my performance					
42. This facility has a good reputation in the community					
43. I understand how my work contributes to the facility's overall goals.					
44. It makes me feel appreciated when patients are grateful.					
45. I am proud to be working for this health facility.					
46. I intend to leave this facility as soon as I can find another position.					
47. Overall, I am very satisfied with my work in this facility.					
48. I try to get on well with the other health staff because it makes the work run more smoothly.					
49. I get along well with my superiors at work					

III. Attitudes towards adolescents

Please indicate the degree to which you agree or disagree with each of the following statements.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
50. I would first recommend unmarried adolescent girls to abstain from sex when they ask for contraceptives.					
51. If a school girl is sexually active she should be allowed to use contraceptives.					
52. Adolescents should be given contraceptive information and					

counselling before they become sexually active.					
53. Providing contraceptives to unmarried adolescents promotes sexual promiscuity.					
54. My personal beliefs influence my ability to provide sexual and reproductive health information and services to adolescents.					
55. Adolescents have the same rights to family planning information and services as any other older or married clients.					
56. A pregnant girl should be allowed to continue school.					
57. An adolescent girl with a genital ulcer is likely to be promiscuous.					

IV. Attitudes towards sexual violence and IPV

Please indicate the degree to which you agree or disagree with each of the following statements.

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
58. As a health worker, how I respond to an adolescent/young woman who has suffered violence from a partner or sexual abuse is very important.					
59. An adolescent/young woman subjected to violence will deny that she has been abused if I ask her about it.					
60. Intimate partner violence is a private matter and outsiders should not interfere.					
61. Sometimes, being abused, assaulted or raped is the woman's own fault.					
62. If the woman had defended herself, she could have avoided being raped.					
63. I should convince an adolescent/young woman subjected to intimate partner violence to leave her violent relationship.					

64. If a woman does not leave her violent partner, she deserves to be abused.					
65. I would feel uncomfortable asking an adolescent/young woman about violence.					

IV. Perceptions of other components of the package of interventions (supportive supervision and collaborative learning model)

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
66. Communication with my manager has improved since the introduction of supportive supervision.					
67. There is greater emphasis on mentorship and facilitation since the introduction of supportive supervision.					
68. I receive more constructive feedback from my manager since the introduction of supportive supervision.					
69. My motivation to perform my job has increased since the introduction of supportive supervision.					
70. There is a more collaborative environment at this health facility since we started using the collaborative learning model.					
71. Health workers at this facility solve problems as a group rather than alone now as a result of the collaborative learning model.					
72. My confidence in my ability to perform my job and provide quality care to adolescents has improved since the introduction of the collaborative learning model.					
73. The collaborative learning model has helped to ensure a system of support among health workers.					

Annex 2: Variables and items

MOTIVATION	
M1alt	Variable 1: Altruistic motivation Individual level determinants of motivation: Intrinsic motivation – motivated by altruism, intrinsic desire to help, professional ethics, professional attachment.
V8t1	Because I like challenges I face in my work
V10t1	Because being a health worker is a fundamental part of who I am
V11t1	Because my work is more than a job, it's a mission
V17t1	Because it is my duty to care for my patients
M2soc	Variable 2: Societal motivation Societal and cultural determined motivation: I form of extrinsic motivation from appreciation, encouragement, support, recognition, respect and admiration (sense of status) from clients, family and the community.
V13t1	Because I want to make a difference in people's lives
V15t1	Because my reputation depends on my work
V16t1	Because my work makes me feel proud of myself
V18t1	Because of the appreciation I receive from my patients and the community
M3ex	Variable 3: Financial motivation Structural level determinants of motivation: Extrinsic motivation as motivated by salary, benefits, and financial security
V21t1	Because of the benefits that come with my job
V22t1	In order to be able to provide for my family
V23t1	Because of the financial security the job provides me with
WORK ENVIRONMENT	
WE1go	Factor 4: Work environment clear goals and purpose
V40	Our facility has clear goals that we are working towards
V43	I understand how my work contributes to the facility's overall goals
WE2ss	Variable 5: Work environment supportive supervision
V36t1	The feedback I get from my manager helps me to improve my work
V41t1	I am keen to use any new tool to improve my performance
V48t1	I try to get on well with the other health staff because it makes the work run more smoothly
V49t1	I get on well with my superiors at work
ATTITUDES	
A1ado	Variable 6: Attitudes towards adolescent girls
V50t1_r	I would first recommend unmarried adolescent girls to abstain from sex when they ask for contraception
V51t1	If a schoolgirl is sexually active, she should be allowed to use contraceptives
V52t1	Adolescents should be given contraceptives information and counselling before they become sexually active
V53t1_r	Providing contraceptives towards unmarried adolescents promotes sexual promiscuity

V55t1	Adolescents have the same rights to family planning information and services as any other older or married clients
V56t1	A pregnant girl should be allowed to continue school
A2gbv	Variable 7: Attitudes towards sexual and IPV
V58t1	As a health worker, how I respond to an adolescent/young woman who has suffered violence from a partner or sexual abuse is very important.
V59t1_r	An adolescent/young woman subjected to violence will deny that she has been abused if I ask her about it
V60t1_r	Intimate partner violence is a private matter and outsiders should not interfere
V61t1_r	Sometimes, being abuse, assaulted or raped is the woman's own fault
V62t1_r	If the woman had defended herself, she could have avoided being raped.
V64t1_r	If a woman does not leave her violent partner, she deserves to be abused.
V65t1_r	I would feel uncomfortable asking an adolescent/young woman about violence
PERCEPTION OF THE INTERVENTION	
PI	Variable 8: Perception of the intervention
V66t1	Communication with my manager had improved since the introduction of supportive supervision
V67t1	There is greater emphasis on mentorship and facilitation since the introduction of supportive supervision
V68t1	I receive more constructive feedback from my manager since the introduction of supportive supervision
V69t1	My motivation to perform my job has increased since the introduction of supportive supervision
V70t1	There is a more collaborative learning environment at this health facility since we started using the collaborative learning model
V71t1	Health workers at this facility solve problems as a group rather than alone now as a result of the collaborative learning model
V72t1	My confidence in my ability to perform my job and provide quality care to adolescents had improved since the introduction of the collaborative learning model
V73t1	The collaborative learning model has helped to ensure a system of support among the health workers



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